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THE
ETCHER'S HANDBOOK.

BY
PHILIP GILBERT HAMERTON,
AUTHOR OF "ETCHING AND ETCHERS."

GIVING AN ACCOUNT OF THE OLD PROCESSES, AND OF
PROCESSES RECENTLY DISCOVERED.

ILLUSTRATED BY THE AUTHOR.

"What, then, is the amount and kind of previous knowledge and skill required by the etcher? It is an innate artistic spirit, without which all the study in the world is useless. It is the cultivation of this spirit, not arduously but lovingly. It is the knowledge that is acquired by a life of devotion to what is true and beautiful—by the daily and hourly habit of weighing and comparing what we see in nature, and the thinking of how it should be represented in art. It is the habit of constant observation of great things and small, and the experience that springs from it. It is taste, which a celebrated painter once said, but not truly, is rarer than genius. The skill that grows out of these habits is the skill required by the etcher. It is the skill of the analyst and of the synthesist—the skill to combine, and the skill to separate—to compound and to simplify—to detach plane from plane—to fuse detail into mass—to subordinate definition to space, distance, light, and air. Finally, it is the acumen to perceive the near relationship that expression bears to form, and the skill to draw them—not separately, but together."

From an Article in the Fine Arts Quarterly Review by MR. SEYMOUR HADEN.

THIRD EDITION,
Revised and Augmented.

CHARLES ROBERSON & CO.
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P R E F A C E

TO THE THIRD EDITION.

IT so happens that the third edition of this little Handbook goes to press exactly at the same time as the third edition of my larger work "Etching and Etchers."

In one respect I have followed out the same principle in both, by eliminating controversial matter. This was useful in its own time, when we had to contend against much prejudice for the restoration of etching to its proper place amongst the fine arts, but to-day, when the victory is won, we may drop controversy altogether, and for my part I gladly do so. It has been one of the greatest satisfactions of my life to see etching resume its place in the world of art.

The space gained by eliminating controversial matter has been occupied by new chapters on processes which will increase the usefulness of the handbook. Beyond this, the work is enlarged.

Two of the illustrations have been withdrawn—the dry point of some cottages which was too much worn to be printed any more, and the etching of two kids which never pleased me as a work of art though it was useful as a technical illustration of a process. The etchings which remain are simple sketches from nature, not carried very far, but quite sound as far as they go, and perhaps more likely to be of use to beginners than more elaborate performances in which the work is not so plainly seen. They were done without erasing. Two of them have been printed twice over to show the different results which may be obtained from the same plate without any alteration in what is drawn upon it.

In the chapter on the etching-needle I have mentioned the points invented by Mr. Alfred Dawson for “typographic etching” as being useful for true etching and in some respects preferable to the needles more commonly employed. There was, however, a difficulty in procuring these points, which are patented and have not hitherto been on sale, as the patentee reserved them for use in his typographic process. At my request Mr. Dawson has very kindly consented to make his points accessible to the general public

through Messrs. Roberson and Co., but it must be understood that the patentee's permission to use them only extends to etching proper and not to any typographic process except his own for which Messrs. Dawson (23, Farringdon Street) supply the prepared plates.

One of the greatest technical inconveniences in etching is the difficulty of covering a deeply bitten plate with transparent ground in such a manner as to protect *quite* perfectly the angles of the copper at the edges of the lines. Too often a biting sets in which was not intended by the artist. From some information recently communicated to me by Professor Church of the Royal Academy, about a new kind of resin given by a species of African euphorbia and which clings to metal with a tenacity unequalled by any other substance available for etching grounds, I am inclined to think that the difficulty just mentioned may be entirely overcome. I have not yet had time to make the series of experiments which will be necessary before determining the composition of the new ground, but will do so shortly and give the result in the Art Chronicle of the *Portfolio*.

London.

December, 1880.

P R E F A C E

TO THE FIRST EDITION.

ALTHOUGH the new processes in etching may be expected in a great measure to supersede those which have been handed down to us by our predecessors in the art, I have thought it best, for several reasons, to give an equally full account of all of them.

It happens, in the first place, that the most revolutionary of these processes is a discovery of my own, and as inventors are always liable to be suspected of undue partiality to their own inventions, the best way to escape suspicions of this kind seemed to be that of treating all processes which have at any time led to good results on a footing of strict equality. Again, although some etchers may like the new processes, others with equally good reason may prefer to remain faithful to the old ones. This is a matter to be decided by the temperament of each practitioner for himself, and the writer of a handbook on the art fulfils his duty best in offering his readers the widest possible range for choice. And the same etcher may

find it convenient to resort to different processes at different times, according to the need of the occasion. The student will therefore do wisely to choose his process according to his taste and temper, and also according to the need of the hour. And let him be assured of this, that unless he really likes the process that he uses, and heartily enjoys the work whilst he is doing it, there is not the faintest chance, whatever his knowledge and ability as an artist, that he will produce a good etching, or anything resembling a good etching. All cold or dull, or business-like etching, however clever and scientific it may be, bears the same relation to the real thing that verse-making does to poetry. And just as a poet, when he sits down to write a lyric, ought not to be bothered with ink and pens of a kind which do not suit him, and are likely to fret him and put him out of temper, so every etcher ought studiously to avoid those varnishes and acids whose operation does not seem to him convenient.

The reader to whom etching is a new subject is especially warned not to judge of the capabilities of the art by the general mass of modern production, which is quite unworthy of his attention. There are a few good living etchers, but a very few ; and out of

the quantities of etchings which are published every year, nine out of ten are not only valueless, but a nuisance, doing much harm by propagating and confirming the false conceptions of the art which are generally prevalent. The majority of amateurs seem to imagine that drawing and chiaroscuro of a degree of badness which nobody would tolerate in a picture, somehow become allowable in an etching ; that because good etchings are usually free, an etcher is at liberty to set at defiance all the known laws of nature and of art ; that the mere act of drawing on varnished copper implies of itself a mysterious cleverness, elevating the practitioner above the common canons of art-criticism. On the other hand, those of our artists who could really etch if they liked are so busy making fortunes with the brush that they have hardly any leisure for a less remunerative pursuit.

I would ask the reader to think of etching simply as a kind of highly-concentrated drawing, subject to the same laws as any other kind of point-drawing,* but more difficult to execute because complicated

* Except that more artistic feeling is expected from an etcher than from any other artist, because the best etchers have always concentrated so much passionate expression in their work with the etching-needle.

(whatever process you employ) by calculations about biting. And the first step towards becoming an etcher is to become a good draughtsman with any pointed instrument. The second step is to master the relations of light and dark in nature. The third and final stage of an etcher's education is to obtain a technical mastery over copper, so as to make the copper yield the precise tone he requires, whether in the depth of a single line or in the shading of a space. Few modern etchers have mastered the copper in this way ; they do not give time enough to the art. It may be done, however, by great labour. Jacquemart and Martial have, each of them, subdued the copper, as Joachim has subdued the violin, the difficulty being probably very nearly equal in both of these two great expressional fine arts.

THE ETCHER'S HANDBOOK.

CHAPTER I.

Of the Etching Needle or Point.

ALMOST any small bar of metal that can be sharpened to a point will do to etch with. Turner used an old fork. A nail at the end of a stick would answer the purpose. Common sewing needles have often been used. There are, however, various degrees of suitableness even in things so easily made as etching-needles, and different artists have different tastes. Mr. Haden's theory about the point is, that it should be heavy, in order that the hand may not have to trouble itself much about pressure, but remain free to direct simply, whilst the weight of the instrument itself penetrates the ground. He therefore uses a bar of steel sharpened at both ends, in shape something like a cigar or a stump. The ideal Haden point would be of gold, as the heaviest of metals, and the one which resists acid best.

My points are made of a single bar of iron or steel, and are shaped exactly like a lead-pencil sharpened

to a fine point. They may be sharpened in the most various ways, according to the need of the moment. I have found the points invented by Mr. Dawson for typographic drawing useful for etching, as from their peculiar section they can be sharpened so as to present different edges, according to the artist's will. After some practice, I found that I easily obtained lines of three very different thicknesses with one of these instruments by merely holding it differently, and I use it often.

Needle-holders are sold in which short needles of different thicknesses can be held tight by a little screw. They are very convenient.

When the etching needle is all in one piece it is more certain to be firm, but the point should be sharpened to a very acute angle, or else the thickness of the iron itself will often prevent the artist from seeing properly what he is doing.

CHAPTER II.

Of the Distinction between Etching
and Dry Point.

TO etch means to eat. There is no etching at all without corrosion—pen-drawing is not etching, and it ought not to be called by that name.

In etching the metal is covered with a waxy substance, technically called a “ground.” The needle removes this where it passes; and the ground being removed along the lines, they are exposed to the action of any acid which may be applied to them.

In dry point, on the contrary, there is no corrosion; it is the point itself which ploughs into the metal, and raises what is called a “bur.”

A “dry point” is really an engraving in which the graver, unlike the burin, is held as a pen or pencil is held; and this being so, the reader may ask why this art, so distinct from etching, is mentioned in a treatise upon etching.

The reason is that almost all the distinguished etchers have used dry point as an auxiliary. It is to etching very much what glazing is to impasto painting—not the thing itself, but a valuable aid and accompaniment. An etching which has been judiciously worked upon in dry point is almost sure to look lighter, more finished, and more transparent;

consequently all skilful etchers practise dry point more or less, and it is considered to be almost a part of etching.

From this it has come to pass that skilful etchers often scratch drawings on copper which are altogether dry points—drawings in which no line is corroded by acid, and yet every line will print, because every line is scratched below the surface of the metal.

Dry points do not generally yield many impressions; but since the discovery of steeling, by which copper is covered with a thin coat of steel, they are more available.

There are two distinct kinds of Dry Point, one being dependent for its effect entirely upon the incised line, the bur being removed with a scraper, whilst the other depends as much upon the bur itself, the copper *raised* by the point in its passage, as upon the incision. Engravers remove the bur, etchers keep it more or less, as suits their convenience. This explanation would suffice for the present; but in order to escape the necessity for another chapter on Dry Point, I add a few words on the bur, and on the ways of raising it.

You hold your point, which is sharpened with a short cutting edge, exactly as a pencil is held, but you may hold a pencil (it is a matter of habit) nearly straight, or you may lean it over to the right. If you alter the angle at which the dry point is held, you alter its power of raising bur. When quite perpendicular it raises a low bur on each side; when very much slanted it raises a high bur on the opposite side. The way in which these burs catch the ink is best ascertained by experiment with copper and a press.

Whilst on the subject of Dry Point we ought not to forget the diamond. A small diamond is set at the end of a holder, in shape like a pencil, and the artist draws with this upon the copper. The diamond raises less bur than steel, because it is so sharp, that it carries away a good deal of copper, but its scratch is marvelous, and when used rightly it is a very valuable instrument. Here again the reader is invited to try experiments and take proofs.

CHAPTER III.

The Old Negative Process

WITH STOPPING OUT.

1. CLEANING THE PLATE.

Before the artist laid his ground the plate was cleaned with turpentine and whiting. The whiting was afterwards removed with bread.

2. THE GROUND.

The etching ground was composed of white wax, bitumen, pitch, and resin. Sometimes one of the ingredients was omitted, but never the white wax. Sometimes gum-mastic was used instead of resin.

Bosse's ground was composed of white wax 30 grammes, gum-mastic 30 gr., asphaltum 15 gr.

It is not exactly known what was the composition of the ground Rembrandt *used*, but an old ground which bears his name is as follows:—White wax 30 gr., gum-mastic 15 gr., asphaltum or amber 15 gr. The mastic and asphaltum were pounded separately in a mortar. The wax was melted in a glazed earthen pot, and the other ingredients were added little by little, the operator stirring all the time.

Callot's ground was composed as follows :—White wax 60 gr., amber or asphaltum 60 gr., gum-mastic from 30 to 60 gr., according to the heat of the weather, the hotter the weather the more gum-mastic, which was the hardening ingredient.

Several other grounds used by the Old Masters have been handed down to us, but those just given here are the best. It is enough to explain the principle common to all these compositions, which is simply to get hardness or softness, at will, by the addition of a hard or a soft ingredient.

Again, it is necessary that the ground should behave well under the dabber, not *sticking* to it, or else it cannot be spread evenly. Also its constitution must be such that it will take smoke without losing quality.

If the student has any difficulty in preparing a ground, he will probably overcome the difficulty by altering the proportions of the ingredients in obedience to these principles.

Let him remember always that the quality of a ground depends very much upon temperature, that a ground which will shell off the plate on a cold day may be the very thing you want on a hot one. Hence a knowing etcher mixes his ground with some reference to the season. It may be observed, however, that the soft grounds do fairly well in most weathers, provided you do not touch them, but use a hand-rest, whereas the hard grounds are so liable to become unsafe when the temperature is in the least below what is suitable for them, that it is always safer to err on the side of softness—that is of the wax ingredient—than on that of hardness, or the resinous ingredient.

When the ground is thoroughly mixed, you pour it into tepid water and roll it into balls.

3. TO LAY THE GROUND.

Wrap a ball of ground in new taffetas silk, of a kind from which small particles do not detach themselves.

Fasten a hand-vice to the margin of the plate, inserting a piece of cardboard to prevent it from roughening the copper.

Heat the plate over a spirit-lamp or anything else, provided there is no dust.

The degree of heat must be enough to melt the composition, but not enough to burn it. The composition, when melted on the plate, *must not boil*. If you burn your ground it will crack off under the point, and so any work you do upon it will be useless and worthless.

When the plate is properly heated, the ground will melt through the silk and spread itself easily as you pass the ball over the plate.

Very likely there will be a sort of greasiness or repulsion in the copper in spite of all your cleaning, so that the ground will avoid the copper in parts, as ink avoids greasy paper. Do not let this discourage you. The ground will spread itself properly under the dabber, and if the dabber does not accomplish this quite perfectly, a subsequent operation will.

4. THE DABBER.

You now need the dabber, which is made of cotton-wool and horse-hair, covered with silk, and kept in shape by a disc of cardboard. To make a dabber you lay first the cotton-wool on the silk, then the horse-

hair on that, then the disc of cardboard on the horsehair, and finally, you bring the silk up on all sides round the disc, bind it with cord, and cut off what is superfluous, leaving just enough to hold it by.

5. DABBING THE GROUND.

Whilst the plate is still heated, you dab the ground all over it with the dabber, to spread it evenly.

If this is well done, the ground will be thinly and evenly spread, and of a pale golden colour, showing the shine of the copper well through it.

If you have too much, you may clean the dabber on a piece of coarse canvas (like that used for printing) and dab again, cleaning the dabber repeatedly, whilst you are at work. In this way the superfluous ground is easily removed.

If you have not enough ground, add a little from the ball and dab again.

6. SMOKING THE GROUND.

Still holding the plate with the hand-vice, heat it again, but not so as to burn the ground.

Whilst the plate is hot, hold it up in the air, the covered side down, and expose it to the smoke of wax tapers, twisted together.

The flame should just touch the plate, no more, and should be passed rapidly along its surface, never resting at one place or else it would burn it. If this is properly done, the smoke-black will incorporate itself with the ground all over the plate, and produce a beautiful black surface.

7. QUALITY OF THE SMOKE.

Much depends upon the quality of the smoke. That from wax is good ; that from mineral oils is

abundant, but too greasy, and the ground does not harden well with it.

8. BURNING THE GROUND.

As I have already warned the reader, the ground which is burned anywhere will shell off when you come to etch upon it, or if not then, it is liable to shell off afterwards in the bath. Hard grounds behave worse when burned than soft grounds do.

If you discover afterwards, when at work, that a portion of your ground, which you believed to be sound, is burnt, you may sometimes get over the difficulty by using a sharper point. A ground which will shell off with a blunt point will often bear work with a sharp one.

9. BANKING THE PLATE.

As I am describing the old process of etching quite faithfully, I am bound to give an account of banking the plate, one of the most unnecessary of traditional processes, and at the same time one of the most troublesome.

It never seems to have occurred to the old etchers that if they could protect one side of the plate against acid, they could protect the other side too, so they took the trouble to build a hedge of wax all round the margin of the plate in order to make a bath of it to receive the acid.

"Banking-wax" was composed of beeswax mixed with resin. It was usually *kept* in sticks, but before being used these sticks were put into warm water and flattened out between the fingers, till they were like ribands. These ribands of wax being set on edge all round the plate, and joined together where they met,

made a wall round it, and they were pressed to the plate to make them stick. It was a tradition that they were to be pressed with a very hot key (just as a very cold key applied to the back of the neck is said to cure hiccup), probably because some early practitioner of the art had happened to have nothing better by him, and had got into the habit of using a key for the purpose. Then the wall of wax was painted with varnish to prevent the acid getting out. Very often, however, it did get out, notwithstanding all these precautions.

The old etchers never reflected how much simpler it would have been just to lay the ground on *both* sides of the plate, and plunge it bodily into a flat bath. It is only, I believe, since photographers took to using flat trays for baths that etchers have learned to use them also.

I very well remember, in my first attempts at etching, the trouble I had with "banking-wax."

Even in the case of the very largest engravers' plates, there is not the least necessity for banking-wax, as porcelain trays can now be had of a large size, and wooden trays can be made acid-proof.

10. ETCHING.

The custom of the old etchers seems to have been to do all the work at once with the point, or nearly so, except what came in the way of corrections and finishing with the Dry Point. How they managed to get paler and deeper tones in the biting will be seen shortly.

11. BITING.

The plate being banked all round with wax had

acid poured upon it. The acid used was most commonly nitric, or nitrous, mixed with an equal volume of water. Other mixtures are said to have been used by the old masters, but the best mordant known to them was the nitric mordant.*

The mordant was left on the plate just long enough to bite the *palest* tones only. Then it was poured off, and the plate dried. Then the passages which were to remain pale were painted over with stopping-out varnish.

Here is an old receipt for stopping-out varnish, but Brunswick black is used now instead of it :—

White wax 8 grammes, asphaltum 30 gr., gum-mastic 4 gr., turpentine 240 gr.

12. BITING, *continued*.

The stopping-out varnish being applied, and having dried, the acid was again poured upon the plate. When it had bitten some time longer, the acid was poured away and the plate stopped-out again, and so on, till the darkest lines were deep enough.

13. OBJECTIONS TO STOPPING-OUT.

Stopping-out is a troublesome and objectionable process, both because it takes a great deal of time, also causing delay in waiting for drying, and because, however much pains you take, it cannot always be done delicately enough. For instance, it is all but impossible to stop out passages of much intricacy, such as a sky seen between the branches of a tree.

I remember distinctly that when I practised the old

* This mordant takes from five minutes for the palest lines to half-an-hour for the darkest, in temperate weather.

process some plates cost me more time and trouble in stopping-out than in the drawing of the subject on the copper.

14. RE-BITING.

If the artist found the subject insufficiently bitten, he cleaned the plate very carefully with turpentine and whiting, and bread, and proceeded to cover the whole of the *smooth* surface with etching ground by means of a dabber, which took it up evenly from another plate. He then put his banking-wax round the plate again, and gave it a second biting.

Contemporary etchers use a roller for this purpose instead of a dabber, as it is more certain, but the roller is of use only when the plate is perfectly flat.

15. OBJECTIONS TO RE-BITING.

The ground fills up the palest lines, and only leaves those which are already rather deep to be re-bitten. Thus the process alters the relations of the lines already made, and that in a manner necessarily different from the first intention of the artist.

A plate which has been re-bitten has usually an unequal look, caused by the excessive depth of the deep lines. The pale lines look, by contrast, paler after the operation than they did before it.

Re-biting has been largely resorted to by the proprietors of old worn coppers by great masters. Very many of Rembrandt's coppers (which still exist) have been re-bitten, and such re-biting always spoils them by giving a violently disproportionate accent to certain lines.

Of course re-biting may be occasionally used by an intelligent etcher with advantage, to give additional

weight to heavy foreground lines, but it can never revive a weak plate equally.

16. TRANSPARENT GROUNDS.

When a plate requires additional work it may be covered with a transparent ground, which shows the work already done, and then the artist may add what he likes.

Here is a receipt for an old transparent ground said to be Rembrandt's.

White wax 30 grammes, gum-mastic 15 gr., asphaltum or amber, 15 gr. Melt the wax first, and add the other ingredients gradually, in powder.

More convenient transparent grounds will be found amongst the new processes.

17. DRY POINT.

The old etchers very often finished their plates in dry point, which has been explained in the preceding chapter.

Note.—When you use stopping-out at all, give plenty of time to it, and remember this maxim, handed down to us from the elder etchers:—“*One day of stopping-out is worth five with the needle.*”

CHAPTER IV.

The Old Negative Process,

AVOIDING STOPPING-OUT.

I. THE FIRST BITING.

Having grounded and smoked your plate in the old-fashioned way (*see* Old Process, pp. 8 & 9), you first trace your subject, which may be easily done by rubbing the back of a drawing with chalk, and then having laid it on the grounded plate passing over the principal lines with a blunt point. You then etch all those parts, and those only, which are to be darkest, such as vigorous foreground work in landscapes, and any black and deep markings wherever you may happen to want them.

Use a blunt point for this work and keep the lines well open. Admit no delicate lines at this stage. Work as Turner did in his etched foregrounds, at least on his principle, making few lines, but these few all strongly suggestive of the light-and-shade of the composition, no outlines, as such, only the darkest places marked by bold marks, leaving the outlines to take care of themselves.

If the reader cares to follow the old tradition of etching to the letter, he will now *bank* his plate with banking-wax, but if he prefers convenience to tradition

he will japan the back of it, and the place where the hand-vice was fixed, and then use a porcelain bath.

The plate is to be immersed in the acid bath long enough to produce very black lines, say half-an-hour, in the usual nitric bath. Then clean it, and have a proof taken to guide you in subsequent labours.

2. THE SECOND BITING.

Ground your plate again and smoke it. The deep lines will still be very clearly visible, notwithstanding the black ground, which must be substantial.

With the proof before you, draw all work that is to be neither very dark nor yet pale. Employ for this purpose a point sharper than before, but not yet quite sharp. Let your lines be nearer to each other than they were, yet not close.

Immerse your plate a second time in the bath till it is bitten sufficiently to make the lines moderately deep. Remove it, clean it, and take a second proof.

3. THE THIRD BITING.

You now ground with transparent ground, and do not smoke. Proceed with all pale and delicate work, such as distances, skies, &c., and with pale tones in near objects, such as tender shades in fur of white animals, &c., and with pale tones that have to cover whole spaces where work has been already done, but which require to be veiled with what painters would call a scumble or a glaze.

This is not so easy as when you worked in the black ground, because you will not see your lines very distinctly.

In the third etching you must keep the lines close to each other, and use a sharp needle, provided your

needle be not sharp enough to make little involuntary stoppages on the copper, jumping from one point to another.

4. ADVANTAGES OF THIS PROCESS.

The advantages of this process are considerable. First, by the clear analysis and division of the work to be done you know what lies before you, and by taking proofs during the progress of your plate, you ensure in a great measure the safety of its progress. By referring to the proofs, you perceive what remains to be done. The system of separate bitings is a considerable element of safety.*

A technical advantage of very great importance is the facility with which, by this process, you may introduce pale lines amongst darker ones. For instance, if you have drawn a tree with dark intricate branches in your foreground, you may introduce a delicate distance or sky as seen between the branches by simply etching in the third process as if they did not exist, whereas to manage the same effect by stopping out, would be tedious in the extreme. In the same manner you may subdue glaring and obnoxious lights by throwing a delicate tint over them, still preserving the full importance of the vigorous lines.

In connection with this process, the reader is requested to take note of the chapter which follows.

* There is, however, a danger about the transparent ground, which is that it may not sufficiently protect the copper at the edges of the deeply bitten lines. The safest and strongest transparent ground is mastic varnish, applied with a brush, but it must be worked in soon, as it becomes brittle if kept on the plate.

CHAPTER V.

Lalanne's Doctrine about Lines.

M. LALANNE, the eminent French etcher, has first given definite shape and expression to a doctrine about lines, which is founded on certain technical necessities and on the practice of the most successful etchers. The student ought therefore to know this doctrine, and remember it when he works, but not to give it a too rigid or formal obedience, because in art the very best of doctrines (and this is one of the best) are liable to become hindrances to the free development of individual ability. An artist ought to know all the best maxims about his art, and yield them an intelligent obedience just so long as they are of use to him, but not one minute longer.

M. Lalanne's doctrine is this :

Lines which are to be deeply bitten ought to be kept apart from each other ; those which are to be of medium depth ought to be nearer, and very shallow lines ought to be quite close to each other. To express the doctrine in a concentrated form :—*The breadth of the white spaces between the lines ought to be in proportion to the depth of the biting.*

To inexperienced etchers, or even to experienced ones who have not much observation, this doctrine of Lalanne always appears a bit of capricious dogmatism. It may therefore be well to explain the reason for it.

I cannot tell you why, but it is a fact that biting always sets in soonest where the lines are nearest together, in the nitric and nitrous baths.

Consequently, if you want any one biting to go on evenly, the lines exposed during that biting must be tolerably equi-distant. There must not be very close work in one place and very open work in another place. The close places would be deeply bitten before the solitary lines were even attacked.

Again, as the more open the work is, the longer it takes for the biting to get fairly to work all over it, the most open work must be longest exposed to the action of the acid.

Finally, in landscape, it is the distances which are to be palest. The eye is best satisfied to find close and delicate work in a distance.

The reason for this will be easily understood. Suppose you see any set of equally-sized objects, the upright bars of an iron railing, for instance, as the rails of the garden of the Tuileries, vanishing in a long perspective: the nearer they are the more open they are, and the thicker each appears; the more they recede in distance the closer they are, and the thinner each appears. So it is with natural objects, the ripples in water, the stems of trees in a forest, men in a street &c. The continual, though unconscious observation of this fact, makes us associate the idea of distance with thinness combined with closeness, and the idea of nearness with thickness combined with openness.

Hence the reader will perceive that M. Lalanne's theory, like all sound theories about art, is based upon the observation of nature, and our habits of mental association, even though at first it may seem to have nothing to do with nature.

CHAPTER VI.

Haden's Doctrine about the Etched Line.

THE distinguished English etcher, Mr. Seymour Haden advocates a doctrine about the line distinct from that of Lalanne, which equally deserves the student's attention.

Mr. Haden's doctrine is, that the etched line, being on account of its extreme and even unrivalled obedience to the slightest variations in the will or sentiment of the artist, precious in the highest degree as a means of artistic expression, ought to be frankly shown and not dissimulated, except under circumstances where its vital accents are unnecessary.

The difference between this doctrine and the ordinary feeling, both of painters and the public, is very great. A painter, from his habit of working in a medium which excludes the line altogether, and deals only with graduated spaces, has usually a feeling of embarrassment about the line, and a desire to hide it as much as possible under gradated tones. In a word, many painters, especially of the English school, attempt to paint with the point rather than etch with it. In the kind of work they do they are often eminently successful. Hook, for example, is an accomplished painter with the point, and so in another way is

Samuel Palmer, whose etchings are most perfect and admirable examples of the rich and full quality they aim at.

For my own part, though fully recognizing the fine tone and clever drawing of the best members of the English etching club, I believe Haden's doctrine to be the right one, namely, that the line ought to be preserved as much as possible, and made the most of. I think that as painting depends upon tones, and it would be a barbarism to introduce lines in that art, so since etching begins with the line, which the etching-needle draws in the ground, it would be barbarous to affect to ignore it and imitate other arts, such as mezzotint, in which there are no lines. Every art does best when it is *most itself*. Of course we all know that there are no lines in nature, but all art is conventional, more or less, very much as language is (even painting is much more conventional than people generally imagine), so the most honest way appears to be that which confesses the conventionalism most frankly. And though the line does not exist in nature, it often explains, suggests, and interprets nature far more clearly and vividly than anything else would in the same time. There is an anecdote of Turner, to the effect that, having once taken a memorandum in water-colour, he said to a friend near him, "How much more I should have got with the pencil-point!" Yes, a line will often tell more about a form than could be expressed with much more labour by colouring a space, and there is a sort of language in the linear arts which enables the artist to convey a good deal to an intelligent person already acquainted

with that kind of language, which to another would remain unintelligible. No genuine etcher would ever pretend that his art was an imitation of Nature, it is an interpretation, not an imitation. And although Nature cannot be deceptively imitated by lines, lines are most efficient in the interpretation of Nature.

Now, an etched line is of all engraved lines the most free; it offers slighter hindrances to the immediate mental expression than any other engraved line can; indeed it is so perfectly free as to offer no appreciable delay or obstacle of any kind whatever. The slightest accent or deviation, even the most transient hesitation or trembling of the designer's hand, is at once registered by the sensitive line. In a word, the line is *vital* from beginning to end, and as the eye follows it, it reads the varying thoughts and moods of the artist. To sacrifice all this vitality by hiding the line is to incur a most serious loss, which cannot, in this art, be compensated. In painting there are no lines, but then there is the brushwork, which is often, in the highest degree, expressive of the artist's feeling, and therefore which serves the same purpose as the expressive line in etching. In etching, if you sacrifice the linear expression, you have no *executive* expression left, you have no brushwork to take its place, you are working with a point and not with a brush, and you must have *point-expression*, that is, *line-expression* or none. A stupid (or else malevolent) critic in one of the daily papers tried to make it appear that I undervalued painting in insisting upon the value of the etched line, but if I were writing about painting I should insist just as emphatically on the value of manly and visible

brushwork deliberately left undisturbed. The greatest painter-etcher who ever lived, Rembrandt, used his brush as honestly as his etching-point, and his etching-point as honestly as his brush. Whether he painted or etched, there was never the least dissimulation of the means used, because, whichever of the two arts he practised, he knew the value of *executive expression*, that kind of expression by which the hand, from the beginning of the work to the end of it, reveals the most delicately various phases of passing emotion, the seekings, and waitings, and hesitations, and the bursts of passionate ardour when the light from heaven flashes upon the soul of the artist, and his heart glows with tenfold heat, and the hand cannot be swift enough to record what the brain sees in the intensity of the inward vision.

CHAPTER VII.

Soft Ground Etching.

IN this kind of etching a skilful artist, accustomed to the process, can produce a very close imitation of pencil-drawing.

You take a ball of ordinary etching-ground and mix it with an equal quantity of tallow, heating both ingredients and stirring till the mixture is quite perfect. In hot weather use less tallow, because it is the softening ingredient, and you require more of it in cold weather.

Make fresh balls of the mixture, and enclose them in a covering of fine taffetas silk. Then lay your ground on the plate and smoke it, as in the former process.

This being done, take care, in the first place, not to touch the plate with your fingers, as that would remove the ground. Then take a paper with a certain amount of roughness in its texture, but not a thick paper, moisten one side of it, and stretch your paper over the plate, exactly as you would stretch paper on a drawing board for water colour, turning the edges back and gumming them to the back of the plate with varnish (stopping-out varnish answers well for this purpose).

You then draw your subject with a pencil on the paper, and on removing the paper you will remove at

the same time, if only your pressure has been what it ought to have been, just so much of the ground as will expose the copper sufficiently to represent pencil-marks when bitten. The biting has to be done by stopping-out, and so you get the different degrees of blackness necessary to your effect. If afterwards the plate needs reinforcing anywhere, this can be done by grounding it in the ordinary manner, and etching a little here and there with the point, only care must be taken to harmonise the different kinds of work, which might easily be dissonant.

I lay little stress upon this kind of etching, because although it is a positive process, and therefore so far superior in convenience to the old negative process of needle-etching, still it achieves nothing which cannot be equally well achieved in another way, namely by lithography. The etching needle has no rival on its own ground ; what the etching needle can do, no other instrument in the world can do, or anything like it. But this process of soft ground etching, even when most successful, is not in any way better than lithography, whilst it cannot be so cheaply printed. I should say, therefore, that if the student prefers an etching of this kind to needle etching, he would do better to abandon that art altogether and take to lithography at once, because in that case lithography would probably reward him better.

CHAPTER VIII.

Bracquemond's Pen Process.

M. BRACQUEMOND has made experiments in a kind of etching with a common pen and ordinary ink, which had first been suggested to him by vague hints and traditions which had reached him.

According to this process, you begin by cleaning the plate very thoroughly first with turpentine and afterwards with whiting, after which you abstain from touching the surface of it with the fingers.

You then draw upon it with ordinary ink and a common steel pen, making in fact a free pen-drawing.

When you have done, you let the ink dry perfectly, and then ground and smoke the plate in the old-fashioned way (*see* "Old Process").

Then you immediately immerse the plate in water. After a quarter of an hour of immersion you rub it gently with a flannel. The ink having been softened by the water detaches both itself and the ground from the plate, and leaves the copper bare wherever it has been. You then immerse the plate in the bath, and bite it as usual.

This process, when skilfully followed, gives a very accurate and effective imitation of pen-drawing, just as the process described in Chapter VII. imitates pencil-

drawings. The plate may afterwards be worked up in the usual manner for delicate touches, as the pen lines are somewhat coarse.

My experience of this process is extremely limited, as I soon found a substitute for it, more agreeable to my own predilections, which will be described in the next chapter. The specimens with which Bracquemond himself has favoured me are enough to prove that in very skilful hands the process may be extremely effectual for the imitation of rude pen sketches, but not, I should think, for work in which it would be necessary to have thin lines. As to paleness and blackness, they may of course be made as pale or as black as you like, because you have all the resources of biting at command, just as you have in ordinary point etching.*

* Pen drawings are now most accurately imitated by *héliogravure*, which is only etching with the help of photography. The simplest way if you wish for a perfectly good imitation of delicate pen drawing, that will print, is to have recourse to the practitioners of that art. Bracquemond's process may be of use for broad and simple work, in large plates, to be etched over more delicately afterwards.

CHAPTER IX.

The Author's Brush Process.

THIS process is founded upon Bracquemond's pen process, but is more certain. The pigment used is thicker than any which can be used with a pen, and is easily destroyed in the acid bath. The essential peculiarity of this process is the employment of a pigment which the acid strongly attacks. The process therefore does not simply depend upon the solubility of ink in water, as Bracquemond's does, but upon the action of acid on a base.

1. CLEANING THE PLATE.

Clean the plate perfectly with whiting and turpentine. Remove the whiting at last by rubbing the plate well with bread. After this, do not touch the plate with your fingers.

2. THE PIGMENT.

Mix some whiting with a palette knife with a strong solution of white sugar. Add a solution of ox-gall about equal in quantity to half the sugar solution.

3. THE BRUSH.

Use a small fine-pointed sable-hair brush, and let the pigment be so mixed as to work rather freely, and draw a thin line on the copper with ease and precision.

4. THE DRAWING.

Use the point of the brush very much as if it were a pen, depending mainly upon lines, but indulging

yourself in a blot occasionally where a blot would be useful, just as a clever artist does in a pen sketch. If your plate has been properly cleaned, and your pigment properly mixed, you will be able to draw as easily as on a sheet of paper.

When you have done you still carefully refrain from touching the surface of the plate, or from letting anything else touch it. The pigment dries slowly. It does not much matter whether it is quite dry or not when you come to the next stage of the work.

5. THE GROUND.

Make a thin solution in ether of the ordinary etching ground described at page 6.

6. LAYING THE GROUND.

It is to be applied as collodion. To expel the ether, heat gently over a spirit-lamp, holding the plate about twelve inches above the flame, and taking care that the ether in the ground is gradually expelled and does not catch fire.

This done, the ground will have become transparent, and lost the frosted appearance it had at first.

7. THE BATH.

Use the Dutch mordant (*see* page 31), and leave the plate in it a quarter of an hour without touching it. Then brush the surface of the plate very gently with a feather. This will disengage the pigment, and the ether varnish over it, leaving the lines exposed to the action of the acid. If the operation has been properly conducted from the beginning, all the lines will be clear, but the copper between them, even in the smallest squares or lozenges, will be perfectly protected. You now leave the plate to bite according to the depth

you require, stopping out when necessary, as in the old process.

The brush process, like Bracquemond's pen process, does not admit of very delicate lines, so the plate may be either finished in dry point or else completed by the addition of point-etching. In the latter case the artist will use a transparent ground.

The brush process is most useful for rich foregrounds, especially in rather large plates. The brush has one advantage over the etching needle, namely its capacity for obtaining accent by the enlargement of the line. This is often very convenient. For example, you may draw a blade of grass from point to root with a single stroke of the brush, but you could not do it with less than two strokes of the etching needle. Again, with the brush, you may obtain many of the effects of the pen, especially its valuable power of blotting, which when rightly used is often most artistic.

During the progress of your work before laying the ground, you may efface as much as you like, but it must be done with the scraper, not with water. With the same instrument you may *take out lights* exactly as in water-colour drawing.

Remember that if a blot is *too* wide, it will not print well. The ink would be taken out in the middle by the wiping of the printer's hand.

* The operations in the brush process are very delicate, and partial failure may be expected at first. If the ink does not take on the plate, you may roughen the copper very slightly by a short immersion in a weak nitric bath. Let the ether ground remain a night on the copper before you heat it, and be very cautious about the heating.

CHAPTER X.

Haden's Negative Process.

MR. SEYMOUR HADEN was the first etcher to conceive the idea of executing a plate from beginning to end in the acid.

Having first adopted a slow and particularly safe mordant, not so disagreeable in odour as the old one, he placed his plate in the acid to begin with, and drew his subject in the acid.

I. THE MORDANT.

Hydrochloric acid . . 100 grammes.

Chlorate of potash . . 20 „

Water 880 „

The water is to be warmed and the chlorate of potash perfectly dissolved in it first, then the acid is to be added.*

A word of warning is necessary here. The etcher is not to use the common muriatic acid of commerce, which disengages intolerable fumes and is of a deep yellow colour. I find that country druggists sometimes maintain that there is no other hydrochloric acid than that, and treat the applicant who asks for it disdainfully. The hydrochloric acid the etcher needs does not fume, and when mixed with water has but a slight odour.

* This is what we call the Dutch mordant. I used to think that it was Mr. Haden's invention, but it has been used in Holland for some time and was probably invented there.

2. TIME OF BITING.

When the weather is not very warm the lines intended to be darkest may be allowed to bite from five to seven hours, the palest one quarter. It is evident, therefore, that one has the time to execute a free etching in the bath, and put a considerable amount of work into it.

3. PRINCIPLES OF WORK IN THE ACID.

You have merely to begin with the lines intended to be darkest, using a blunt point, and keeping them rather wide apart (according to Lalanne's rule), after that gradually proceeding towards the paler work, where you will use a sharper point, and make your lines closer.

If you calculate your time well, and do your work properly, your plate will be finished with a perfect gradation when you take it out of the bath, and you may print a proof of it at once.

4. THE TRAY.

The most convenient tray for working according to this process is a drawing-board of some very light wood, an inch and a half thick. In the middle of this a well is hollowed an inch deep, and three legs are adapted to it, exactly of the sort used by photographers for setting up a camera. By means of this arrangement a perfect level may be secured in any ground, and then the etcher will put his plate in the well. Of course a hand-rest is required, which may be a thin piece of deal or cedar just strong enough to bear the hand over the acid without yielding.

It is better to have only just acid enough to cover the plate, because if there is any considerable depth of

it there is an inconvenience about the real position of the plate and its apparent position.

The etcher will feel some embarrassment at first from the necessity of marking only very dark lines in the earlier stages of his work, but he will overcome this with a little perseverance. The dark lines once established, will guide to the positions of the paler ones, and it will be found less difficult to draw on this principle than beginners usually imagine.

5. ADVANTAGES OF HADEN'S PROCESS.

First. *Perfect gradation in work.* All other systems of biting proceed by stages, usually two or three stages. This system of Mr. Haden's is one of unbroken gradation from the deepest biting to the palest.

Second. It saves the necessity for stopping-out, which was a cause of delay and difficulty in all passages of any intricacy, such as skies seen between the branches of trees, &c.

Third. It enables an experienced etcher to complete a plate at one sitting without being delayed by re-grounding, proof-taking, &c.

6. IMAGINARY DIFFICULTIES.

If you mention the process to any old-fashioned etcher he will laugh at you. He will also, most probably, look you in the face with an air of conscious superiority, as if he knew that you had stupidly forgotten something of which he was clearly conscious. Then he will say, "And what becomes of the needle?" This means that the needle will be dissolved by the acid.

Of course the point of the needle which is in the bath is constantly, though slowly, dissolving, but the

action of the bath is merely to keep it sharp, and the money loss is so small as to be imperceptible, not exceeding sixpence a year.

An imaginary difficulty of this kind stops many people. The cost and inconvenience caused by the dissolution of the point in the acid do not equal the cost and inconvenience caused by the wearing away of the lead in pencil drawing, yet the old-fashioned etcher is stopped by the one, and, from habit, thinks nothing of the other.

Another difficulty, equally imaginary, is the notion that there is no certainty of procedure when you etch in the acid, that the result must be curiously unexpected, "due to chance," and so on. The fact is that as the acid bites very slowly and in the most regular manner, the weights of tone may be decided quite accurately beforehand by referring to a watch. There is no hurry whatever about the process, and if you are interrupted you have only to take your plate out of the bath and keep it out till your next sitting.

Some people say that a plate etched in the acid is bitten five or six times sooner than one etched out of the acid. This is a pure delusion, based on nervous fears. The simple truth is that the two are bitten in precisely the same length of time, if the acid in each case is of the same strength, and the temperature equal. You may increase the rapidity of biting on a portion of the plate about the size of a shilling by fixing the etching needle there, because the contact of the two metals in the acid establishes a galvanic battery, and copper flies off within a certain limited radius.

7. REAL OBJECTIONS TO HADEN'S PROCESS.

Mr. Haden's process is excellent for a master of the art, who has got accustomed to it, but is not suitable for beginners, or for timid practitioners, because it requires such certainty of hand, and such accurate calculation of the future value of the lines. Again, whilst the plate is in the bath, *the differences are always lessening*. For example, a line laid at the very beginning, and a line laid an hour afterwards, are when the plate has been an hour and a half in the bath, of very different value, but as the plate remains longer and longer in the bath they are constantly approaching in value. This has to be continually taken into account, and it adds to the difficulty of the process.

Another real objection to Haden's process is that the mordant he uses *darkens* the copper as it bites, so that after a time it becomes difficult to see the lines that have been already etched. This may be temporarily overcome by resting the iron point for a few seconds on the plate in the part which you desire to see. The galvanic action above-mentioned will clear the lines, so that you will see them all plainly enough. But this is only temporary, they darken again when the iron is removed.

By using a weak nitric bath instead of the Dutch mordant, the difficulty is removed, and the lines remain light-coloured. The nitric bath, however, is not so safe as Mr. Haden's bath, I mean it is not so reliable as a mordant.

Finally, it is clear that with this process correction is out of the question. You cannot alter and amend

unless when the plate ought to be finished you correct it by the tedious old processes. As the line is laid, so it must remain, hollowing itself deeper and deeper into the dissolving metal. This is a very serious objection in the case of almost all amateurs, and of many artists (not by any means the worst generally), who, though able to produce admirable works by correction and laborious care, have no natural talent for improvisation.

CHAPTER XI.

The Negative Process in One Biting.

THERE is no necessity to practise this process much with a view to actual production, but a thorough understanding of it is most valuable to an etcher as a part of his technical education and he ought at least to begin by making experiments in it.

A satisfactory etching can be produced by a single deep biting—an etching much more satisfactory than any one who had not studied the subject would be inclined to believe.

Needles of various thicknesses ought to be used ; they should be thin and sharp for lighter parts and blunt or broad for the strong lines.

There can be no pretension to complete truth of tone in etching of this class, but the tones of nature may be learnedly interpreted, though they cannot possibly be imitated by it. The artist should not attempt to imitate delicate greys, but should generally interpret light greys by white, as the finest early engravers did.

The Dutch mordant should be used in preference to nitric acid as it does not enlarge the line, and it is very important in this process that fine lines should

be kept fine. If they are so kept, heaviness may be very well avoided as the fine lines do not yield up all their ink in the printing, when they are deeply bitten, but of course when they are enlarged in the biting they act as broad lines and give up much more of the ink, producing heaviness.

Darks will be got by congregating many and thick lines, and lights by few and thin lines. It will be found that in practice the whole of nature may be intelligently interpreted on this principle.

An etching so produced may be made to have a much more finished appearance by working upon it in dry point when the biting is over.

CHAPTER XII.

The Author's Negative Process,

FROM DARK TO LIGHT WITHOUT STOPPING-OUT.

THE following negative process, which I used before discovering the positive one, may be recommended as avoiding some of the chief difficulties of other processes. It avoids stopping out altogether, and there is considerable certainty about the result, as you may calculate your values of light and dark pretty accurately.

I. THE GROUND.

Make a clear solution of beeswax in turpentine, decanting it till no sediment of any kind remains. The solution should be perfectly fluid, and of a bright clear yellow colour.*

To this solution add one-sixth of its volume of japan varnish, but you must vary the quantity of varnish according to the heat of the weather. If there is too much of it, the ground will be hard and brittle; if there is too little, the ground will not be strong enough to take smoke with safety.

2. APPLICATION OF THE GROUND.

First clean the plate with engraver's emery paper, and then plunge it in Dutch mordant till it darkens all

* The reader will please observe that it is yellow *beeswax* and not white wax. Letters from correspondents prove that readers do not always notice this.

over. This change of colour assures you that there is no grease, and it assists the adherence of the ground. The slight roughening is easily removed afterwards.

Then pour the ground on the plate as the photographers pour collodion, and let it dry for twelve hours. After that, apply a second coat of the ground in the same manner, and smoke the second coat immediately without waiting for it to dry. The result is a ground perfectly even and smooth, so that it reflects everything like a mirror, and so equally sound that you may etch all over it with equal safety.

It is one of the most satisfactory grounds I have ever tried; but it hardens afterwards by time, and ought therefore to be used within a few days after it is laid.

It is not absolutely necessary to allow the first coat to dry slowly. If you are in haste to use the plate you may expel what is volatile in the turpentine by passing the flame of a spirit lamp under the plate till the ground becomes quite transparent; then let it cool, and as soon as the plate is cold pour the second coat over it and smoke immediately. If these operations have been properly performed, you will have a quite perfect ground.

3. REASON FOR THE APPLICATION OF TWO COATS.

Grounds which are applied in a fluid state are necessarily very thin; and if you smoke a single coat sufficiently to make it really black you introduce a quantity of lamp black into the ground, which alters its chemical constitution so that it becomes weak, does not adhere well, and though it may seem right when you are working with the point, will detach itself in the acid bath. By applying two coats and smoking

rapidly you insure adherence, because the first coat is not altogether penetrated by the smoke, and it is this first coat which resists the acid, whereas the second retains the lamp-black.

4. WHEN THE GROUND IS TOO HARD.

You may find the ground too hard for a blunt point ; when it is still in good condition for a sharper point ; but if it is too hard for a sharp point, you may still make it serve by gently heating the plate on a warm lithographic stone, and keeping it there whilst you work. Increase, when the ground is hard, the proportion of the wax solution.

5. DRAWING AND BITING.

Draw all the dark parts first, then plunge the plate in the bath for one half the total time of biting, whichever bath you use. For instance, if it were Dutch mordant, in winter the total time would be six hours, so your first biting would be for three hours ; the Dutch mordant in hot weather would require four hours, so your first biting would be for two hours ; a nitric bath in temperate weather would be for half-an-hour, so your first biting would be fifteen minutes.

Then take your plate out, dry it with blotting paper, and draw the *next darkest* lines wherever they are wanted. Immerse the plate for one-fourth of the total time.

Take it out again, add the paler tones, but not the palest. Immerse for one-eighth of the total time.

Finally, draw all the palest work in the plate. Immerse for one-eighth of the total time.

If the reader is reading carelessly (as I am afraid most readers do, especially reviewers) it will seem to

him that the third and fourth bitings are for equal lengths, being each set down for one-eighth of the time. However, as the third biting is still going forward with the fourth, it is really of double duration, and the account, at last, stands thus:—

The darkest lines have bitten the whole time.

The darker lines have bitten half the time.

The paler lines have bitten a quarter of the time.

The palest lines have bitten one-eighth of the time.

Add to this a little retouching with the dry point, and the plate is finished.

6. A STANDARD FOR BITING.

Every etcher ought to etch a standard plate with the various depths of shading obtained by these different bitings. By reference to this, he will be able to ascertain beforehand the effect of what he is doing.

It is well in this process to follow somewhat rigidly Lalanne's doctrine about lines, and to use four points for the four sittings, the bluntest first, the sharpest last.*

7. THE USE OF THE WARM BATH.

The most certain way to secure regularity of biting is to have the bath always at the same temperature, and always as nearly as possible of the same strength.

To obtain an equal temperature it is necessary to heat the bath artificially and continuously, as the heat of the atmosphere is variable.

My own present habit is to put the bath of Dutch

* Since this chapter was written I have got into the habit of laying all my first grounds with the roller, an instrument originally intended for rebiting, but very useful for laying ordinary grounds as well.

mordant on a warmer which is a sheet-iron box filled with hot air. The air is heated by two lamps supported by a stand which is so constructed that they can be raised or lowered at pleasure so as to regulate the heat. Where gas is accessible the tap answers the same purpose.

A glass thermometer is kept in the bath, and my way is to heat up to 90° Fahrenheit, but it is of little consequence what heat is adopted provided that it is quite regular. The higher the temperature the more rapid is the action on the copper.

The Dutch mordant at 90° gives a pale line, which prints well, in three minutes, and a very deep strong line in seventy minutes. Between these extremes a great variety of depths may be obtained.

Regular heat is not of itself enough to ensure regularity of biting. The bath must be kept as nearly as possible at the same strength by resolutely throwing away a considerable portion of it after every biting, and replacing it with freshly made mordant.

The Dutch mordant is best when made freshly every time it is wanted, and not kept in stock. If left to freeze in winter it loses its strength.

The warm bath cannot be used for etching in the acid as the odour disengaged from it is much stronger than that from the cold bath.

CHAPTER XIII.

The Author's Positive Process.

I. PURPOSE OF A POSITIVE PROCESS.

By my positive process the artist, whilst he is etching, sees his work in black upon a white ground, as distinctly as if he were drawing with a lead pencil on white paper, instead of seeing it in copper on a black ground.

The old negative process is not only objectionable because it is *negative*, but also because the lines are *brilliant*, which causes them to appear more rich and numerous than they really are.

A star seen by the naked eye appears very much larger than the same star seen through a telescope, although the telescope magnifies it many times. The reason for this is, that the glittering rays about the star which dazzle the naked eye are shorn away by the telescope.

In the same way the lines of glittering copper in the old system of etching appear richer and more abundant than they really are, because of their deceptive glitter.

They deceive also in another way. Those which run at right angles to the rays of light appear brighter and more numerous than those which are parallel with the rays.

The consequence of these deceptions is, that it needs a vast experience to know accurately the state of a plate before you see a proof of it, and even the most experienced etchers are liable to frequent deceptions.

In nine cases out of ten a plate is much poorer than it looks, and requires a considerable amount of after labour to bring it up to the degree of richness which the etcher believes himself to have already attained.

In a positive process, on the other hand, when the lines do not glitter but show as dull darks on white, there is no deception of this kind.

It is unnecessary to add that a positive process which shows those lines dark that are to appear dark in the printing, is plainer than a negative process in which every dark line is represented by a light one. The difference is, that in the negative processes the artist *calculates* what he is doing, whereas in the positive process he *sees* what he is doing.

2. THE SILVERING OF THE PLATE.

As a copper plate, however well polished, is still rather dark in colour, I silver it to make it lighter.

The most convenient way of silvering a plate is to use silver cream, and this is the way to make it.

The first thing is to procure chloride of silver, which is made as follows :—

Put 60 grammes of nitric acid into a tumbler, and add the same quantity of water. Put the tumbler into a small pan half filled with water, which you set over the flame of a spirit lamp. Throw a shilling into the tumbler, and let the mordant boil five minutes. Remove from the fire, and let the contents of the tumbler cool. The shilling will now be entirely dissolved.

When the solution is cool, add to it 120 grammes of pure water, and then pour into it, drop by drop, 25 grammes of hydrochloric acid. This will immediately produce a white precipitate. Now transfer the whole into a large glass and add pure cold water liberally, stirring well with a glass rod. This is to wash the precipitate. Let it settle to the bottom of the glass and pour away the acid and water. Fill up again with pure water and repeat the washing. Pour off the water again and wash the precipitate a third and a fourth time in pure water. You may now dry the precipitate between sheets of blotting-paper and on a warm glass.

The next thing to be done is to dissolve your chloride. You begin by making a strong solution of cyanide of potassium as follows:—Put 80 grammes of water in a tumbler and put the tumbler in a pan, as you did before with the mordant, till the water in the tumbler boils. Dissolve in it 20 grammes of cyanide of potassium. When the solution is accomplished put 10 grammes of chloride of silver (a shilling should give 10 grammes) into the tumbler and stir well for five minutes with a glass rod. Leave the solution to cool.

You have now a solution of chloride of silver in a solution of cyanide of potassium, but it is too acid and too fluid. You therefore add 25 grammes of cream of tartar, and after that 50 grammes of chalk, stirring well till all ebullition ceases.

The best way to use the silver cream is to apply it first with a camel-hair brush and leave it for five minutes on the plate, then rub the plate with a clean rag till nothing is left but the metallic silver.

Chloride of silver may be made rather more promptly by simply dissolving photographer's nitrate of silver in water and then precipitating the chloride.*

3. TO MAKE THE SILVER OF A DEAD WHITE.

Roughen the surface of the copper slightly before silvering with fine emery paper, letting the lines run in the direction which will be from right to left, or from left to right, whilst you are at work. This catches the light on the surface of the plate, and makes it white.

The white ground, in drying, deadens the silver still further.

4. THE WHITE GROUND.

Dissolve white wax in ether, making what chemists call a saturated solution. Let it settle a few days. There will be a clear part, and a milky part, below it.† The clear solution is what you want, because the milky part is not really a solution, but a suspension of undissolved particles, many of which are perfectly insoluble in ether, when, as most commonly happens,

* The following is the receipt in a condensed form :—

Chloride of silver	.	.	.	10 grammes.
Cyanide of potassium	.	.	.	20 „
Water	.	.	.	80 „
Cream of tartar	.	.	.	25 „
Chalk	.	.	.	50 „

Readers who are not accustomed to chemistry are warned that cyanide of potassium is one of the most terrible of poisons. Even its odour produces disagreeable and alarming symptoms in some persons. Mind that no drops of the strong solution get upon any little wound on the hand. Ventilate the laboratory well immediately after making the silver cream.

† If it is all milky add more ether till you obtain a clear solution.

the white wax has been adulterated with starch or other white powder. In fact, by making the solution in ether, you at the same time ensure the purification of the wax, which is a great thing in itself. Your clear solution will be white wax, in as pure a state as can be when the ether has evaporated.

5. APPLYING THE GROUND.

Pour the solution in the same way as described at page 40 on the silvered side till it makes a pool reaching to the edges of the plate. Then incline the plate gently, yet firmly, and rather quickly, so that the solution may run first to one corner and then to another, till finally you pour all the superfluous solution back into the bottle. In finishing, you should move the plate rapidly, so that first a long side of the plate may be vertical and then a short one.

Let the ground remain three days to dry. Then apply a second coat of wax in the same manner. Let the second coat remain four days before you make use of the plate. Lean the plate against a wall in a quiet room where nobody goes, its face to the wall, so that it may not catch dust.

If you accelerate the drying by the heat of a spirit-lamp, you obtain transparence but lose the dead white, which is desirable.

6. THE BACK AND EDGES OF THE PLATE.

Paint the back and edges of the plate with stopping out varnish, to protect them.

7. THE BATH.

It is essential to use the Dutch mordant because it gives a dark line. The nitric bath gives a light-coloured line, and is therefore useless for our purpose.

The mordant is composed as follows :—Chlorate of potash 20 grammes, hydrochloric acid 100 gr., water 880 gr. If you have not French weights, the same proportion may easily be preserved in English ones. First warm the water and dissolve the chlorate of potash in it; then add the acid. Mind that your hydrochloric acid is pure (*see* p. 31).

8. THE SKETCH.

The ground is so delicate that almost all kinds of tracing may injure it. The safest is the greasy carbon paper, made for manifold writing by Messrs. Field and Tuer. It should be very thin and a bone “style” should be used as lightly as possible.

You may sketch the subject directly with a little Japan varnish thinned with rectified turpentine and applied with a small camel's hair brush. The sketch should be allowed to dry before the plate is put in the bath.

The delicate wax ground should never be touched.

9. THE PLATE TO BE ETCHED IN THE BATH.

The plate must be etched in the bath *according to Mr. Haden's process*, otherwise the lines would not darken sufficiently (*see* p. 31).

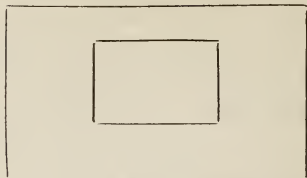
10. THE DRAWING-BOARD.

The drawing-board to be used is the same as recommended for Haden's negative process at page 32.

Do not have the well for the porcelain tray cut in the middle of the board, but towards the top of it (*see* next page), as it is much more convenient. In etching an upright subject with the same board, have the broad margin to your right hand.

Let the board be entirely japanned with several

coats of japan, say six coats. The dark colour of this



makes the plate look whiter, and the japan protects the wood efficaciously against the acid.

You may imagine that there is no use in having the well so deep, as the bath is only just to cover the plate ; but if your bath is too shallow, the acid by capillary attraction will get into the small space between your hand-rest and the board and very soon flood the whole board, and spoil your sleeve. Any flat piece of thin wood will do for a hand-rest (*see* Haden's negative process, page 32).

For etching from nature I prefer a wooden or gutta-percha tray to the drawing-board, because it is much lighter and smaller.

11. TO FIX THE PLATE IN THE BATH.

Lay it exactly where you wish it to be, and take four balls of modelling wax about the size of a marble. Press each of them strongly with the thumb, so that the wax may cover a corner of the plate and spread upon the tray or drawing-board. The plate will then adhere firmly and travel safely.

12. THE BLACKENING OF THE LINE.

If the bath is in a right condition the line will blacken the instant you draw it, but it will not do so in a perfectly new bath. Hence, before beginning to work, dissolve a small bit of copper in the bath.

13. THE ENLARGEMENT OF THE LINE.

The wax ground is quite safe, but it permits the lines to enlarge slowly. There is consequently a perfect gradation in thickness from the earliest lines to the latest, as the time of exposure diminishes. This is most fortunate, being exactly what the etcher needs, and in strict accordance with Lalanne's doctrine about lines.

14. THE NEEDLE TO BE USED IN THE POSITIVE PROCESS.

In consequence of the enlargement of the line we dispense with a variety of blunt and sharper points in this process, using one point only, a rather strong sewing-needle inserted in a holder. It should always be sharp enough to scratch well through the silver, that the copper may be attacked by the mordant at once, without which the line would not blacken instantaneously.

15. HOW TO DEAL WITH A SKETCH CONTAINING LESS THAN FIVE HOURS' WORK.

You require five hours for the biting of the darkest lines, consequently the plate *must* remain in the bath five hours. If you wish to give only two hours' work, you must so distribute them over a space of five hours that the lines you draw may reach the degree of value in light and shade which you desire. In the intervals you may carry forward another plate in the same way.

16. HOW TO DEAL WITH A PLATE THAT REQUIRES SEVERAL SITTINGS.

From the account just given of the positive process, the reader may see how a single-sitting plate may be carried through successfully (as in the Haden process),

but he may not see at once how to deal with a plate that requires several sittings.

Suppose the case of an elaborate plate requiring five sittings of six hours each.

Begin at first with a selection of the work *over the whole plate*, amounting to one-fifth of the total labour to be given. Then clean the plate and ground it afresh. In the second sitting you will also go gradually over the whole plate in the same manner, adding work to that which already exists. So in the remaining sittings. You cannot, whilst working in the acid, do the whole of the foreground in one sitting, and the whole of the distance in another, on account of the operation of the acid, but you must so time your different sittings as to work always at the same hour on tones intended to be of the same depth. There is no difficulty or inconvenience about this when you get accustomed to it.

17. TO CORRECT BY EFFACING WORK.

Proceed at first exactly as if there were no silver on the plate, boldly using scraper, charcoal, &c., and re-silver, &c. afterwards before re-touching, if re-touching is required.

18. CLEANING PLATES, &c.

Turpentine is usually employed for this purpose, but in giving an account of my own process, I may as well add that I find schist-oil a much better cleanser than turpentine. It leaves the hands, too, in a more agreeable condition, for everything except the smell, which may be got rid of by using plenty of scented soap. Petroleum is also much better than turpentine. Both schist-oil and petroleum remove Japan varnish

very rapidly, whereas turpentine dissolves it slowly. Since using schist-oil, I find it possible to combine the pursuit of etching with decent-looking hands, which I never could manage with turpentine.

19. TECHNICAL DANGERS.

The greatest technical danger in the positive process is that when several sittings are given to one plate the edges of the line already bitten may be insufficiently protected by the wax solution, which is of extreme tenuity and delicacy. The proper way to avoid this is to use a stronger transparent ground. Paraffin wax is said to answer admirably. It should be melted in a shallow tray in which the plate is plunged, and when the plate is removed the lower side of it should be laid upon a surface of very cold water which chills the paraffin and makes it look much whiter.

Mastic varnish protects lines already bitten. It should be applied with a brush.

In concluding the description of my positive process I may observe that the silvering of the plate is more a luxury than a necessity. It is agreeable because it gives a white surface which makes the purple line look black by contrast, but copper is still light enough in itself to show the line in dark when the Dutch mordant is used and the ground is transparent.

Zinc plates covered with paraffin wax are of a pale grey so near white that the lines look almost black by contrast.

Positive processes are only to be recommended for working out of doors, as it is unpleasant, and perhaps unhealthy, to have one's nose over an acid bath for hours together in the still air of a laboratory.

CHAPTER XIV.

A Mixed Process,

FROM LIGHT TO DARK.

A PLATE may be begun by drawing everything as if it were to be finished in negative. You may use the black ground and draw in it out of the bath with a fine needle.

The next thing to be done is to bite this just deeply enough for your pale tones.

You then remove the ground entirely and cover your plate with a transparent ground, either mastic varnish, paraffin wax, or the ordinary etching ground not smoked.

After this you go on etching in the bath till you get all the middle tint done.

Lastly, you may cover again with ordinary etching-ground, smoke your ground, and work out all the darkest lines with the point. These you can bite deeply at your leisure.

This process is convenient because if any mistake is made in drawing in the earliest stage it can be easily corrected, whereas a deeply bitten line is not so easily effaced. A proof can be taken after the removal of each ground to show the real state of the plate.

CHAPTER XV.

A Mixed Process.

FROM MIDDLE TINT TO LIGHT AND DARK.

INSTEAD of drawing for a light biting the etcher may make his first drawing with a view to middle tint, omitting all the palest passages. This can be done in the ordinary black ground, smoked.

The etcher then bites his plate moderately, removes the ground, and takes a proof which ought to give him good clear form everywhere and all middling shades, but neither delicate lines nor deep ones.

The plate may now be covered with a good transparent ground, such as mastic varnish, and the delicate work added in the bath ; or, if the etcher dislikes working in the bath he may employ the ordinary ground, and smoke it, as the lines will be clearly visible and he can draw the delicate work amongst them with a fine needle.

The deepest lines may be got after the ground has been removed and a second proof taken, either by re-biting in the middle tint, or else by covering the copper entirely, smoking it, and working afresh with a strong needle sharpened to a scraping edge. Very vigorous work may be added in this way so as to make the etching gain greatly in force and clearness.

CHAPTER XVI.

To Efface Faulty Passages.

WHENEVER you have a bit of irremediably bad work in an etching you may efface it entirely.

The most rapid way is to use first a shaving scraper which will cut off clear shavings of copper; next, sand-paper of different degrees of coarseness, the coarsest first, and then the triangular scraper, and finally, willow charcoal with olive oil. The charcoal will leave the surface in a fit state to etch upon.

This scraping and rubbing hollows the surface of the copper, and if it hollows it too much the printing will not be quite satisfactory in that part of the plate. In that case you have nothing to do but mark the spot on the back of the plate with a pair of callipers, then lay the plate on its face upon a block of polished steel, and give it two or three blows with a hammer (mind that the hammer is rounded so as not to indent the copper).

The only objection to this way of effacing is the time it takes. If you have a trustworthy coppersmith in your neighbourhood, you may first show him what has to be done, and then send your coppers to him when a part requires effacing, but you cannot trust engraved plates in the hands of most workmen, as they are too careless and always scratch them. The professional copper-planers for engravers do this work as a part of their business, and may be trusted.

CHAPTER XVII.

To Reduce a Passage that is Overbitten.

USE willow-charcoal with olive oil, and nothing else, as scrapers and sand-paper injure the edges of the line, whereas willow-charcoal does not injure their quality at all, but merely reduces the copper.

Another very curious fact about reduction is that it alters the relations of lines by revealing, in certain circumstances, the differences of biting more clearly than they were seen before.

The paper does not clear the ink out of a line that is both deep and narrow, it only takes part of it out, consequently narrow lines of very different depths will give the same degree of blackness. When, however, the copper is reduced, some of the lines are seen to be shallower than others by their effects upon the proof.

The student is recommended to avoid reduction by friction as much as possible, and to use the burnisher in preference which reduces by compressing the edges of the line instead of wearing them away.

It is sometimes necessary to efface pale lines altogether in order to reduce deep ones sufficiently. In that case the pale lines may be etched over again.

The etcher ought to bear in mind that reduction

alters the nature of an etched line in a peculiar manner. In an etched line the copper is hollowed out laterally as well as vertically, so that a section of it is like a circle with the upper segment removed. When the plate is worn to a certain degree you get a section like a semi-circle which prints a broader line than the unworn line would give. If you wear it down still farther, the line becomes narrower, but shallower and paler than it was at first. All reduction is apt to make the plate look as if it had been worn by over printing.

CHAPTER XVIII.

The Roller.

THE roller is a cylinder of wood $8\frac{1}{2}$ inches long by 4 inches, with two projecting handles in its axis, each of them about an inch thick and $4\frac{1}{2}$ inches long. It is covered with leather stretched over flannel and joined so as to be perfectly cylindrical. It is kept suspended in a box by its handles. It is cleaned by pouring spike oil over the surface of the leather and scraping with an ivory palette knife or paper-cutter.

The roller was originally invented for laying grounds for re-biting, but now artists use it for laying their first grounds also, and find it a most precious auxiliary.

1. PREPARATION OF ETCHING PASTE.

Grounds can only be laid with the roller in the form of etching paste, which is prepared as follows:—

Take Bosse's ground, described in Chapter III, melt it in a pot which is to be put in a pan of hot water, and add to it just enough oil of lavender to become, when cool, of the consistency of pomatum. Stir well with a glass rod, and let some drops fall on a cold slab to ascertain, by their setting, how thick the paste is.

2. CHARGING THE ROLLER.

Spread some of your etching paste with a palette

knife on a pane of glass ; plate glass is best as being flatter than the other. If the paste is too thick add a little oil of lavender and work it up with the palette knife or a muller.

Pass the roller over the paste until it is evenly charged. If there is too much paste on the leather roll it over a sheet of clean glass till only a sufficient quantity is left.

If there is too little oil the paste will be sticky and stiff—if too much, it will dabble and produce a sort of marbling on the glass. If just as it ought to be, you will hear a crisp sound, very easily recognisable, which will guide you afterwards.

3. GROUNDING THE PLATE.

The plate may be grounded whilst it is cold, which is a practical convenience, but after the ground is spread, the plate must be heated to expel the oil of lavender. Heat it over a spirit lamp till the ground looks transparent all over. If you now find that there is too much ground on the plate, pass the roller over it whilst the copper is warm, and discharge the roller by rolling it over a clean cold glass. By this means you can obtain a ground of the most extreme tenuity, but when grounds are excessively thin they are very liable to be injured during the tracing of the plate. They have, however, the advantage of being very easily removed by the point, and they protect the copper quite as well as thicker grounds.

4. SMOKING THE GROUND.

This is done in the ordinary manner, but please take note that it must be done whilst the copper is still warm and the ground melted upon it.

5. GROUNDING A PLATE TO ADD WORK WITH THE NEEDLE.

You may lay a black ground with the roller so perfectly that it will show all work already existing upon the copper quite as well as a transparent ground would.

To do this so as to protect the etched lines perfectly you should first apply rather thick etching paste with your fingers, just as a printer applies ink for his first proof, so as to fill the lines, and then pass thinner etching paste over the plate with the roller to cover the spaces between the lines. Then smoke.

CHAPTER XIX.

Re-biting.

I ALWAYS disliked re-biting when the plate was to be covered with the dabber, but since using the roller I have found re-biting practicable and safe.

The plate must first be thoroughly well cleaned with petroleum or rectified turpentine, whiting and bread, so as to get everything out of the lines.

You then charge the roller lightly, discharging all superfluous paste on a sheet of glass as described in the last chapter.

Mind that your etching paste is not too thin, because, if it were, it would get into the lines, and for the same reason take care that there is not too much of it on the roller.

Remember that your present object is to protect the flat unetched spaces of copper everywhere, however small they may be, and to leave as many lines as possible exposed to the action of the acid, however fine they may be.

In applying the roller to the surface of the copper you must not press in the least, as if you did you would fill the lines. You must simply push the two handles with your thumbs. Roll over the plate once in each direction, from top to bottom, from side to side,

and from corner to corner, like the red lines in a Union Jack.

The etching ground may be heated to expel the oil of lavender, but when so heated it has a tendency to withdraw from the edges of the lines. It will dry of itself, without heating, in twenty-four hours.

You protect back and edges well with Japan varnish, of course, and use the same material for the protection of all the lines that you do not wish to rebite, after which you bite as long as you think necessary.

As the ground is thin, and not smoked, your mordant should be slow and not of a kind which attacks the lines laterally too much, by ebullition. The Dutch mordant is by far the best for rebiting.

CHAPTER XX.

Etching from Nature.

ETCHING is the only kind of engraving which can be conveniently done directly from Nature. Some of the best modern etchers work from Nature habitually.

The necessary preparations are simple enough. On an excursion of several days the plates may be ready grounded and carried in a grooved box such as photographers use for their glasses. Or if you are only going out to etch a single plate you may carry it in a wooden portfolio made of two light boards with a frame between them to keep them from touching. The plate is easily fastened to one of these boards by two small screws. There is no necessity to bore holes in the plate (which would spoil the proofs), it may be fastened quite firmly to the board by the heads of the screws only.* If you use the old negative process these preparations are sufficient; if you employ Haden's process or mine (etching in the acid negatively or positively), you will need the drawing board with the well (*see* page 50), and may carry your plate in a grooved box.† You must have a little Japan or stopping-out varnish with you to re-varnish the edges

* A simple tray is lighter than a drawing-board, and you may fix your plate firmly in its place before starting by pressing lumps of modelling wax upon its four corners and spreading the wax a little on the wood.

† The simplest and most convenient way of carrying *a pair* of negative plates, ready prepared, is this. Place a ball of modelling wax the size of a pea on each corner of the plate, upon

before you put the plate in the bath, as they will have been exposed by friction in the grooves. You need not burden yourself with the mordant already made. It is enough to have a little case of two stoppered bottles, one for the hydrochloric acid and another for chlorate of potash. You can get water elsewhere.

In etching from nature, always make it a rule to choose the kind of subjects best adapted to the art, and to yourself. Remember that for vegetation in all its forms etching is eminently adapted, and also for the picturesque in buildings or in animals and figures. On the other hand the art is not so well suited for those things in nature which require for their interpretation the accurate management of very delicate tones. If your eye is true, and well-educated, you will be able to hit the delicate relations of tone in distant mountain scenery, for example, with much accuracy in water-colour and in a very short time, but with exactly the same artistic ability you will find it monstrously difficult in etching. On the other hand, you may etch a rich weedy foreground, a group of picturesque cottages, a group of trees, or any material of that kind, in the most satisfactory manner if you are naturally fitted for the art, and have mastered it.

the grounded side, lay the other plate so that its four corners may rest upon the four balls of wax and the two plates be face to face. Then press the plates together till the balls of wax are flattened to the shape of cheeses. The plates will now stick together firmly enough, but without touching each other, and they will protect each other against everything else. Slip them into a bag of strong cloth made to fit them like a glove, and you may carry them in your pocket as easily as a pocket-book. This dispenses with boards and boxes, which are unnecessary.

So in figures you will find it supremely difficult to give the modelling of a naked figure because that depends upon *tones*, but you will find the art perfectly well adapted to render a beggar's tattered dress, or the wrinkled face of an old woman, because truth here may be effectively expressed by lines.

In a word, wherever the line, as such, has great expressional value, etching triumphs easily, but where nothing can be done without very accurate tonality, the technical difficulties are so great that it requires years of labour given to this especial art to overcome them.

In working from nature remember that shading may be made to express a great deal about form when it is used ingeniously, quite independently of what is expressed by the degree of light or dark it gives. The direction of shading is often explanatory of surface. For instance, if in shading a thatched roof you make your lines go in the same direction as the blades of straw, they will explain a good deal about the nature of the roof, and if you shade moss with dots instead of lines you will suggest the nature of moss, because in nature it is always dotted. There are a thousand things of this kind which you will find out for yourself in working with the view of making your lines always as explanatory as you possibly can. One tree has its bark strongly marked by longitudinal divisions, you may take advantage of these, and make them both give darks to your etching and an explanation of the nature of the tree. Or if, as in the birch, the bark strips off horizontally, you may explain this fact by the direction of your shading.

The great etchers, in the course of their practice, have authorised a sort of conventional language of the art which every etcher ought to learn, for it is based on rational principles, like all that is good in the fine arts. For example, if you were etching a sky you would naturally use horizontal and not perpendicular lines. Why? There are no lines of either kind in nature. The great etchers, however, have always used horizontal lines for skies, and we continue the tradition of this practice, because we can obtain a gradation so much more easily across many lines than in the direction of one line. It is true that in every sky there are two gradations, one from the horizon to the zenith, and the other from right to left, or from left to right, but the first is by far the stronger and more obvious of the two, and therefore the best etchers have so arranged their lines as to accomplish that gradation the more easily.

There is not space, in a little handbook, to follow out a subject of this kind in detail, but two pieces of advice may be given which, if properly followed, will make the student's career a safe one in this respect. The first is to make your lines as much as possible *serve two purposes at the same time*, namely that of producing darks where darks are needed in your plan of chiaroscuro, and that of explaining the nature of the thing you are drawing. The second piece of advice is, when you have recourse to conventional interpretation, always to choose, whenever you possibly can, those conventionalisms which have been already used by great etchers in past times, because they already constitute a sort of language which is

understood by all who have studied the art. Have no fear that by doing this your originality need be sacrificed. Do not authors of books use words which are conventional signs, and which have been in use for centuries, and yet display their originality, when they have any, nevertheless? It is wiser to use a sign that will be understood by the class to which you address yourself than one which will have to be learned like a foreign word. Study some really genuine etcher, Rembrandt, or Claude, or Vandyke,* and learn his language, in which afterwards you may express your own ideas with such modifications as may be necessary.

Remember, in working from nature, that much of the peculiar value of a fine etching, much that distinguishes it from an engraving by the burin, is its artistic heat and vivacity. A *cold* etching is a bad etching. Hence, when you work from nature, never attempt anything that does not really cause you some kind of strong artistic emotion, and work only so long as the emotion lasts. If your impression has been powerful, and you are able to render a powerful impression rapidly, you will most likely produce *living* work ; but if you are only half-interested, and work in a quiet professional way to do the day's labour, without caring much about the subject, or much enjoying the art, then the work will be dead work and not of the least value. The spirit of laborious painters and engravers who give infinite time and trouble to the elaboration of one effect is a good spirit in their arts, which produce their

* The portraits before the formal engraver-like backgrounds were added.

results by patient accumulation of steadily and scientifically directed labour, but the state of mind in which an artist etches best is that in which he ardently and passionately desires to set down a thought whilst it is yet most fresh and most vivid. Mr. Haden goes so far as to say that an etching ought to be done in a single sitting. This is not always possible, but it is wise to give only so many sittings as we can go through without losing the first impression. Or, you may give one sitting direct from nature, and finish afterwards in the house to get the work better together, always in view of the impression you receive from nature. In some respects this plan is better than going to nature several times, because if you see the subject on different days, when the effects are different, and you yourself are in a different temper, there will very likely come a sort of confusion over your mind, not as to the *things* you saw (the houses, trees, or what not), but as to the unity of impression, which depends quite as much upon the temporary effect, and the temporary state of your own mind (even upon the book you have been reading in the morning, or the letter you have received) as upon the material things before you.

CHAPTER XXI.

Etchings to be Studied.

I HAVE not space to give here anything like a critical account of the best etchers, and have already given it elsewhere, but a few words as to the study of examples may not be out of place, or unnecessary.

The more study you give to Rembrandt's work, the better your method is likely to become. No man ever loved the art of etching more, or understood it better. There are many kinds of imperfections in his plates, and it would be easy for any moderately accomplished critic to point them out, but in almost every instance they are perfect models of technical execution, if you take into consideration the time Rembrandt intended to give to each. The 'Christ Healing the Sick,' for various degrees of finish skilfully united in the same plate, the 'Descent from the Cross by Torchlight,' and the 'Three Crosses,' for masterly rapid work in naked line, and the 'Death of the Virgin' for grandeur of method everywhere, and perfect use of means, are the most notable amongst the sacred subjects. Of the "allegories and fancies," the 'Youth surprised by Death' is the most delicate and refined in manner. A good many of the beggars are worth careful study, especially the one with the large belly. Nearly all the portraits are fine, and one of the best pleasures of an etcher is to look over any fine set of impressions of them. The early portrait of his mother, done at

the age of twenty-two, is a model of right workmanship on a small scale, and so are old Haaring, Janus Lutma, and the nameless man with the silvery beard and the fur cap, on a larger.

Amongst the landscapes take the 'View of Omval' as a model of work with the etching-needle, and the 'Landscape with the three Cottages' as a model of work with the dry point. Rembrandt's knowledge of landscape was inferior to that possessed by modern landscape painters (no branch of art has advanced so much *scientifically*, during this century, as landscape), but his technical execution, as an etcher, is better than modern execution usually is.*

Ostade's execution was good and sound in its way, but quite simple, lacking the great *resources* of Rembrandt's. His fame depends more upon his truth to peasant life and his clever composition. Paul Potter drew beautifully with the point, but does not seem ever to have understood sketching, and thoroughly good intelligent sketching is the foundation of great etching. Study the 'Bull' and the three etchings of Horses.

* If the reader has not access to original etchings by Rembrandt he is warned not to trust much to the photographs from them. No etching in which the resources of the art are called into play can possibly be photographed. The photographs are nothing but reminders for students who know the originals. Study Flameng's small and precious copies in Charles Blanc's catalogue rather. M. Amand-Durand's *héliogravures* may be recommended heartily. They are real etchings, done with the help of photography, and come very near the originals. They are sometimes overbitten.

Study everything of Vandyke's with scrupulous care. You may learn a good deal in landscape etching from Waterloo and Weirotter. Weirotter attained remarkable truth of tonality, which is not common, and he attained it by quite simple means.

Some of Canaletti's etchings are worth studying. The best of them is 'La Torre di Malghera,' chiefly to be recommended for general luminousness and for the clever execution of the buildings.

Amongst Frenchmen Claude is the best landscape etcher of past days, and Lalanne the best of the present day. Claude had a wonderful tenderness in handling, and got extraordinarily delicate tones, very perfect in gradation. The 'Herdsman' and the 'Sunset' are the two most perfect of Claude's plates. Boissieu was very clever, too, in getting delicate and accurate tones, and in imitating objects; follow him in his truth of tone, but not in his deceptive imitation. Méryon's etchings of architecture are the best examples in the world of the treatment of architecture, which is not ruinous, in artistic etching. The skill with which he could draw one clear unhesitating line, full of life from beginning to end, and yet as accurate as was compatible with the expression of artistic feeling, has never been equalled in the art. He used to etch from nature standing, and holding the plate in his left hand, which held at the same time a small mirror to reverse the subject.* Then he drew the

* In etching from nature, if you wish the proofs of your plate to appear topographically true, you must of course use the mirror to counteract the reversing in the printing.

lines on his plate, quite steadily and firmly, yet without erring either on the side of carelessness of form or forgetfulness of feeling. Feats of this kind, which were performed by Méryon without any idea of display, and were known only to one or two artists who had seen him at work by accident, are as astonishing as the feats of Paganini on the violin.

Lalanne is an etcher of uncommon ability technically, and of the most graceful and elegant taste. The 'Vue prise du Pont St. Michel' is on the whole, I think, the most perfect of all his works, the kind and quantity of labour given being everywhere settled beforehand with such perfect judgment. There is not a line too much, and the drawing is neither too rigid nor too free. No one but a most accomplished artist could etch such a work as this, because drawing of this kind must come right at once, or the failure is evident.

Jules Jacquemart was a man of the most consummate natural ability, and he brought the art to a degree of imitative perfection which it never before attained. His works combine the accuracy and certainty of the most accomplished modern engraving, with the artistic liberty of the true etchers. All those things which the ignorant affirm to be impossible in etching, Jacquemart *did*, and did triumphantly well. You may therefore go to his works as proofs of what can be done in the art, and you will derive from them this lesson, that whenever you fail the fault lies in your own unskilfulness, and not in any defect of the process. On the other hand, you need not hope ever to rival Jacquemart on his

own ground unless you give the whole of your time to the art, and are an uncommonly clever artist to begin with. To any one who did not give his *whole* time to etching, whether painter or not, such work as Jacquemart's is every bit as impossible as Robinson's engraving with the burin. Even Rembrandt himself could not have approached it on its own ground. It will do you good to study it, however, because you will hear much nonsense to the effect that etching cannot do this thing and cannot do that, which a knowledge of Jacquemart's work will enable you to estimate at its true value.

Charles Jacque is well worth studying too, and is a real *master*, knowing the art better than any other living painter ; but since he has made experiments in different directions, most of them successful experiments, it is necessary to know a good deal about his works to form a correct general idea of him. Study rather his interpretative work, which looks somewhat rough, than his imitative work, which looks highly "finished."

Appian is one of the sweetest and best of living etchers, artistic and sensitive in a very high degree, and able to reach remarkable truth of tone. He is a delightful painter, and carries more of his painting into his etching than artists generally do. The unity, breadth and keeping of his execution are beyond praise.

Lastly, amongst modern Frenchmen, let me recommend Veyrassat, who is one of the very best of them all. There *can* be nothing better of that kind than his little etchings of horses. The perfect taste of the

execution, the perfectly artistic manner in which everything is given up to the right point and never beyond it, the simplicity of purpose, the absence of affectation, the absence of all thought of displaying the great stores of knowledge, without which work of this kind would not be possible to any one, are as admirable as, unfortunately, they are rare. The student will do well, however, to remember that work of this kind is in a high degree deceptive. It looks as simple and natural as an egg or a gooseberry, yet you can no more make it than you can make eggs and gooseberries, only you fancy you can, because it is a human product.

Of Englishmen Turner was a magnificent etcher in pure line, but his work is not so instructive as it might have been, because he looked to an after-process of mezzotint to complete the effect. Wilkie was a very excellent etcher, though he did not etch much. His plate of 'the Pope examining a Censer' is one of the most masterly plates in existence.

Amongst living men Whistler may be cited as an etcher of rare quality in one important respect, the management of line, but his etchings owe much of the strange charm which they possess to a Chinese disdain of tonic values, and to a wayward caprice, loving detail here and scorning it there, which, being strictly personal, can only be of use as an example in one sense, that it shows how valuable in the art is a genuine personal feeling. Whistler is an admirably delicate draughtsman when he likes; there are passages in his etchings which are as striking in their way as feats of execution, as the most wonderful passages of Méryon.

Mr. Haden, an eminent London surgeon, is of all living English etchers the one who has been most faithful to the principles of the art. Though an amateur, he is really also an artist, and a master-artist. He is a pupil of Rembrandt, and having allied much of what was best in Rembrandt's very fine and genuine technical manner to the modern knowledge of landscape, has produced work of quite a surprising quality. The excellence of it may be accounted for partly by the fact that Mr. Haden had always been in the habit of using drawing as an auxiliary in the study of anatomy, and that when he took to etching he was obliged to abandon the exercise of his profession for years in order to recruit his health, these years being employed chiefly in this particular art. The student cannot have a better model than Haden with reference to the technical use of line; but a student who attempted to produce, out of a spirit of mere imitation, anything resembling what Haden did in hours of strong and genuine feeling would probably fail ridiculously. There is much in Haden's work which it would not do to set as a model before boys any more than you would give them some strongly individual autograph to copy if they were learning to write, but his scribblings and scrawlings and scratchings are always right where he puts them, right for him, and in their right place.

The other English etchers are not generally to be recommended as examples of the most genuine work in the art, because, for the most part, they have set themselves to get painters' results or engravers' results rather than the special qualities of etching. For example, it is clear that the real teachers of Creswick

were not the great etchers but the modern vignette engravers, and it is clear that the real aim of Samuel Palmer and Hook is to get as much as possible of the effect of their own pictures in water or oil. In these aims the modern English etchers have often succeeded very admirably indeed. Creswick's plates were charming; of Samuel Palmer's I know not how to say things beautiful enough to do justice to their beauty, so tender and full of feeling are they, and rich with such affluence of thought. Hook can paint with the point very exquisitely. (See his wonderful plate of 'The Egg Gatherer.') Frederick Tayler, as in the hunting scene in the 'Songs of Shakespeare,' ("What shall he have who killed the deer?"), pushed the craft of modern etching to its utmost possible limit.

But although these etchers, and others of the same school, have produced works which we cannot help admiring in their way, it is better not to imitate them, because they have led the art out of its natural and peculiar path. It is useless to employ an etching needle if we are not to avail ourselves of its superiorities. Etching is, like violin playing, capable of imitating other arts, and as a matter of curiosity it is interesting to see an etching which is like an engraving, and another which is like a mezzotint, and a third which is almost like a painting; just as it is amusing to hear a clever violinist imitate a hurdy-gurdy, or a flute, or a canary bird. But if we heard nothing else but these imitations we might be inclined to say, "Well, this is really very wonderful, but now, suppose the violinist were to imitate a violin?" As the violin is the great expressional instrument in music, so is the etching-needle

the great expressional instrument in engraving, and to abandon its superiorities in order to aim at the qualities of other arts, is unwise, because the loss is greater than the gain.*

* In the first edition of this work I said that the delightfulness of Samuel Palmer's work might be preserved in mezzotint. This did not sufficiently take into account the value and importance of the line-work in his etchings. The truth is that they have much of the quality of mezzotints but at least equally the quality of line etchings along with that.

I take this opportunity of adding that few modern dry points are equal to those of Mr. Heywood Hardy, taken chiefly from subjects of animals. He uses the sharp point, and expresses with it a rare knowledge of animal nature, with a rare degree of technical skill.

CHAPTER XXII.

The Training of an Etcher.

WITH few exceptions, etchers of high rank have hitherto been distinguished painters, to begin with. Still it is clear that although an etcher ought to know the effect of colour in black and white, he need not be a colourist. Again, as the etching-needle is a very different instrument from the brush, it does not seem absolutely necessary that an etcher should be able to use the brush in order to master the needle. What is absolutely essential is that he should be an artist before he uses the needle, that he should have studied drawing, and light and shade, and composition, in some other art, either with the brush or the crayon or the pencil, in water-colour, oil, chalk, charcoal, or anything out of itself.

But why, to learn etching, is etching itself the art most to be excluded?

Because, in etching, there is no immediate comparison possible between the model you are studying and the line you are making, so that study from nature is not so beneficial in etching as in other arts. Even in my positive process the *full* effect of what you do is not visible at once, as it is in pen-drawing, for example. To study beneficially, you ought to use some process which allows of incessant comparison.

Pen-drawing is very good, but it should be pen-

*drawing of a comprehensive kind, not mere outline only, but taking account of everything, including effect, and always on pure principles of *sketching*, however far the sketch may be carried. If you cannot sketch you cannot etch. And let me observe that the vulgar notion about the facility of sketching is a delusion. Only the best artists can sketch really well. A sketch differs from what is vulgarly considered finished work, in always acknowledging that there is much beyond what it has recorded, in avowing this quite frankly in the manner of work. To put the matter plainly, any drawing, painting, or etching by Rembrandt, Rubens, or Turner (and many others of the best men), however far it may be carried, always confesses that it might have been carried farther, and though stating some things very plainly, leaves many other things in the stage of mere suggestions. But the artists who do not sketch only give you what they can finish, hinting at nothing that they cannot quite clearly express, saying what they can say clearly, but being silent about what they have not knowledge or leisure to explain. An etcher, therefore, when he works in other arts as a training for his own, ought to avoid these latter methods of work, because etching ought to be not only explanatory of what can be explained, but suggestive of much that cannot be explained.

If I had to train a pupil for etching, especially, I would teach him first to make a good comprehensive pen-drawing, no more imitative of any kind of engraving than my hand-writing as I scribble these pages is imitative of a visiting card, but marking in

an honest artistic way the black spaces and the white spaces, and the dots, and shapes, and shades of all kinds, which occur in any fortuitous assemblage of natural objects. In this way he should make sketches, but very careful sketches, that is studies made in a limited time, but hinting at or suggesting much more than could be quite legibly expressed in the time, of men and plants and animals of all kinds, but not of distant landscape, for which this sort of work is of little use. But as the tonality of pen sketches is hardly ever very complete, the pupil should make drawings in sepia, or burnt umber, with a brush for the special study of tonality, and he should make many of these, giving on the whole about as much time to them as to the pen sketches.

These two things, the pen study for line, and the sepia study for values of light and dark, are sufficient if properly done, and enough done, to educate an etcher. Lalanne makes a great many charcoal drawings; he does them very admirably and very fast, and gets in this way studies both of form and light and shade in the same drawing. It is a very good plan also, but I think on the whole the other, that I have just described, is a better plan for most men, as it separates the two aims of the etcher, linear expression, and tonality.*

When you have gone through a great deal of hard study with pen and brush, etch some simple subject, to begin with, from nature, by my positive process, and another subject by the old negative process, and

* Pen drawings with charcoal over them have much of the quality of etching combined with mezzotint.

giving each a fair trial. Amuse yourself for a while in trying the different processes described in this book, and if you feel a decided preference for one or the other, have faith in your preference, for it is suggested by your own mental constitution, and practise your own process steadily till you succeed in it, both from nature and in the etching-room. You will have many a hard battle, many an hour of mortification, but let me tell you that all good etchers have passed through these ordeals, and been dirty with charcoal and oil and printing-ink, and burnt their skin with acid, and spent hours and days in rubbing and scraping and correcting, often with no immediate result except utter dissapointment. Correct plates a little, but if they do not come right with a reasonable amount of effort and pains, have them repolished, and etch something else upon them. You will advance better by doing fresh subjects than by wasting time in trying to cure your incurables. Imitate nature in this as in everything. She does not trouble herself about curing incurables, but sends fresh healthy babies every day into the world to replace them ; she leaves the uprooted tree to rot where it lies, but all around it the twin-leaved younglings sprout from their cotyledons. Etch many plates innocently and happily, not troubling yourself in the least about what any friends or the public may think about them ; then select a few of the best and liveliest of these to be printed, and send the rest unhesitatingly to the planer.

CHAPTER XXIII.

Printing.

THE reader will find, as he goes into the matter, that the printing of etchings is a subject upon which there are very different opinions. It would be very easy to write a volume about it, but as the essential characteristic of a handbook is brevity, I must confine myself to what can be said in a few words.

My own doctrine about the matter, which has sometimes been misrepresented, is contained in the following sentence, printed in italics.

That kind of printing is best which for each plate best helps to express the intention of the artist.

Here is the doctrine in its most concise form, but to prevent any possible misapprehension I will state it rather more at length.

The printer, in my estimate, is far more than a machine, he is or ought to be an intelligent fellow-worker who understands the intentions of the artist, and assists in carrying them out.

Writers who are ignorant of the subject, sometimes assert that the printer does this by making a sort of picture in printing ink on the plate which does not exist in the etched work in the copper. The truth is that the intentions of the artist may be quite different in different plates, that he may be best aided in one instance by simple printing, and best aided in another

by artificial printing. There can be no general rule, except that every etching should be printed as the artist himself directs.

Now let me explain how simple and artificial printing differ.

All intaglio engraving, which includes etching, is printed by filling up the lines with ink, and wiping the ink more or less from the polished surface of the metal between the lines. The paper is then forced *into* the lines by enormous pressure and actually *moulded*. It fetches up the ink out of the lines. The wiping is done with printers' muslin or canvas which clears away the ink from the metal surface without emptying the lines.

Now, if you want a very simple proof to show you the state of the lines themselves, you clean still further the spaces between the lines by passing the palm of your hand, lightly charged with whitening, over the whole plate. This cleans the polished surface perfectly, and you get a dry and hard proof like a visiting card, which shows you exactly what the lines are. Whilst a plate is in progress, the artist should always take proofs of this kind to see where he is, but they are seldom very agreeable proofs to look at, because they are hard and cold.

The artist's original intentions may often be better carried out by printing which is more or less artificial, or "artistic," as it is sometimes called in opposition to the hard "natural" printing just described.

In "artistic" printing the plate is treated in various ways so as to help its expression and add to its charm. The kind of treatment differs with each plate.

Sometimes the copper is cleaned with the muslin or canvas only, without using the hand. This leaves a tint over the surface and the lines look softer.

Sometimes the copper is cleaned more in one part than in another, so as to leave the surface tinted with thin ink in one part and clearer in another.

Sometimes the copper is first well cleaned all over, and then, to prevent hardness and to increase the blackness of the lines, the ink is partially pumped up out of them by passing a very soft fine muslin rag lightly over the surface. This is called *retroussage*—there is no English word for it. It makes the plate look as if it had been more deeply bitten.

Artificial printing may be carried extremely far. It has sometimes happened that for a single proof, an artist has amused himself by elaborately constructing a pictorial effect on the copper in printing-ink. It can be done, but for ordinary practical purposes, the limits of artificial printing are soon reached.

Many plates are now executed (I could mention specially some by Flameng, Waltner and David Law), with a view from the beginning to artificial printing. There is no harm in this provided that they get into the hands of intelligent printers who carry out the artist's intentions, but if by accident such plates fell into the hands of unintelligent workmen, the results would be fearful to contemplate.

The safest way is to etch so as to leave a minimum of work to the printed.

Nevertheless, all absolutely hard and dry printing is generally disagreeable to the eye from its very hardness, and consequently those plates produce the best

general results which are not so overcharged with work that the printer may not at least print rather softly and leave a slight tint of ink.

Two plates in the present edition of this work have been printed twice over to show the difference between one kind of printing and another.

The first print of Plate III, is a hard and dry impression like an early proof (plate wiped with the hand) taken to see what is exactly the state of the lines. The second print (plate wiped with canvas) is richer and softer without being at all overcharged with ink, and having a more artistic appearance, it suits the taste of an artist better.

The first and lighter print of Plate IV is not a bad impression, but in the second a tint of ink has been purposely left upon the water which adds a natural truth, since in nature, water (with rare exceptions) is darker than the things which it reflects.

These brief hints may put the student in the right direction, but if he wants to print he should see a printer at work. Any ordinary copper-plate printer can give one or two first lessons, but such printers only produce dry and hard impressions and do not understand the treatment of an etching. The plate is laid upon a plate warmer and heated till it is as hot as the hand can pleasantly bear, this enables the thick ink to get into the lines.

The plate-warmer may be of sheet or cast iron, heated by anything which will keep up an equal temperature. Gas is best, in its absence any kind of lamp will answer the purpose. French printers commonly use charcoal under ashes.

The paper must be thoroughly softened by having been wet for sometime, but though damp all through it should not be *wet* when used.

Proofs are best dried by hanging them on a string or a clean pole, they are made to lie flat by being pressed when nearly dry for twenty-four hours, between soft thick mill boards changed three times.

When proofs have been taken from a plate, the copper must be thoroughly cleaned with a brush and turpentine going into every line. If ink is left to harden it is difficult to get it out again.

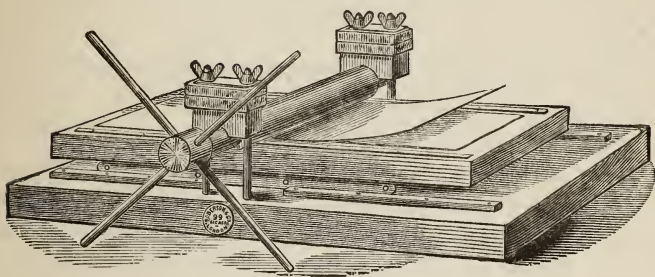
Three or four soft cloths are put between the plate and the roller of the press in printing. It is essential that these should be kept soft and renewed when too hard.

Printing ink is made fresh every day by good professional printers, but it is troublesome to make, and the amateur can generally do little more than renew his supplies frequently. The oil for printing ink is thickened by burning, and if an amateur wishes to make his own ink he can do it best by procuring the oil ready prepared, and then mixing it with Frankfort black with a muller as if it were thick black paint. When the ink is too thick it can be thinned with a little drying oil.

The pleasantest paper is moderately sized. Un-sized paper is better than that which is excessively sized. Rather rough papers which show the wire-mark are preferred to smooth ones because the pressure always makes them smooth upon the copper, and then the rough margin makes a pleasant contrast. Quite white papers are not much liked because they do not

sustain an etching well, and when papers are too deeply toned, they put out all the high lights. The pleasantest papers have a creamy but not too yellow tone. The best papers which I have ever bought in large quantities for my publications have been supplied by Messrs. Morel, Bercieux & Co., of 30, Rue Mazarin, Paris. They supplied a paper for the illustrations to the third edition of *Etching and Etchers*, which all the four different printers delighted in. On the other hand I have sometimes received vigorous protests from printers about papers supplied by makers of the highest reputation. The paper used for the illustrations in this edition was made by the firm just mentioned and is excellent. The mere appearance of a paper is hardly any guide, the practical test of it is to print an edition. Beautiful but bad papers are the torment of printers.

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CHAPTER XXIV.

Some Notes on Etching Tools.

I HAVE already spoken of the etching-needle elsewhere. It is best to have it heavy, and all in one piece. The etching-needles usually sold are fixed in wooden handles, and become shaky after hard dry-point work. Only have your needle cut to a very acute angle (as a mechanical draughtsman cuts a pencil), or else you will find that the thick iron prevents you often from seeing your lines properly.

When practising the old process it is convenient to have a hand-vice with a wooden handle, as a hand-vice all of metal sometimes becomes inconveniently hot; but this is a mere luxury.

A matter of very great consequence indeed is to learn how to sharpen your dry point properly for dry-point work. It ought to have a short cutting edge, rounded, but cutting not pointed. When once you have drawn a good dry-point line on the copper, and felt the peculiar feeling in the hand which there is when the tool takes to the copper kindly, examine the point of it with a microscope, and you will see a rounded cutting edge, which (on a very tiny scale) resembles the rounded knife that saddlers use for cutting leather. When once you have seen it (and felt it in working) you will be able afterwards to sharpen it in that way.

As for the etching-neededles you will sharpen them, or make them blunt, exactly as you require them to be.

The scrapers ought always to be kept *as sharp as possible*. If their edges get broken or blunted they will scratch the copper, and then the task is simply endless. You use the scraper to remove scratches; it makes fresh scratches, you use it again to remove these; it makes fresh ones, and so on *ad infinitum*.

The burnisher is used to *crush* inequalities in the copper and produce a smooth surface. If the reader uses it he must keep it in a state of the highest possible polish, as everything depends upon that. The way to keep a burnisher polished is to have a slip of deal about six inches long, with a groove cut in it with a very small gouge. Then you rub your burnisher to and fro in this little groove, and that keeps it in proper condition.

NOTE:—With regard to the sharpening of the dry point I find that Mr. Heywood Hardy, whose dry points are excellent, sharpens the tool to a simple point without a cutting edge. Everything depends upon personal tastes and habits in these matters.

CHAPTER XXV.

The Illustrations.

PLATE I.

OLD NEGATIVE PROCESS. PLATE IN A FIRST STATE.

There were three stoppings-out, and then the plate was cleaned and re-grounded, this time with a transparent ground, in which were drawn the lines of the sky and distance. The difference in value of dark between the large tree-trunk and the more distant trunk to the left is caused by the fact that the paler one was protected by Japan varnish, whilst the other continued exposed to the action of the acid.

But a plate in this state cannot be considered finished. The leafage, for example, is in a good state of preparation for future work, but no more, and the ends of the branches are purposely left fragmentary to leave space for foliage yet to be drawn ; it would be desirable, also, to throw a tint over the distance, a pale tint in fine lines very close to each other. The foreground, too, requires some vigorous work to sustain the dark trunk of the beech tree, which greatly wants a basis, as it has a look of being suspended in the air, and this foreground, under the effect of the light, ought to tell as a dark against the sky. Now all these improvements may be added in subsequent states of the plate by using transparent grounds and frequent stoppings-out.

PLATE II.

OLD NEGATIVE PROCESS, FOUR BITINGS, RE-
TOUCHED WITH DRY POINT.

This plate is carried farther than the preceding one, and there is but little work in it at the stage of mere preparation. We have an instance here of a facility which was convenient in the old negative process, that of stopping-out before the first biting began. The reader will observe a few little twigs in front of the great trunk under the gnarled branch. These twigs have a light side, but this light side was not reserved in shading the trunk, it was stopped-out afterwards before the first biting.

There are differences in tonic value between the branches themselves; this is due to subsequent stoppings-out. The bit of grass at the tree's foot is pure dry-point. It would have been possible, of course, to add a tint of sky in pure dry point with the bur removed, behind the branches; but this is merely a study of a tree-trunk.

PLATE III.

SKETCH IN ONE SITTING BY THE AUTHOR'S
POSITIVE PROCESS.

In a sketch in one sitting it is not possible to have any very accurate definition of form, on account of the time at your disposal, but you *must* pay attention to the tonic values of the various parts of your composition. If your time has been properly calculated, the tonality will come right of itself in the positive process. Observe, for instance, in this plate, the difference in value between the iris and the alder-bush to the right, and the bushes and bank to the left, on the other side of the stream. Again, observe the difference between the bank and the distant trees, and between the nearest of those trees and the hill behind it. All these differences both in the depth and thickness of the lines were due simply to the time of biting, as the needle employed was the same for all of them, and the hand-pressure precisely equal everywhere.

I may add that I had one of my miniature presses with me at the riverside, and that, within a few minutes after the removal of the plate from the bath, I had taken a proof of it, there, on the grassy bank.

PLATE IV.

ETCHING IN TWO SITTINGS BY THE AUTHOR'S
POSITIVE PROCESS.

In this plate the reader is invited to observe, first, the perfect soundness of the ground, which is not pitted anywhere, notwithstanding its extreme tenuity, and secondly the immense utility of the enlargement of the line. For without that enlargement, the vigorous lines in the foreground would have been as thin as those of the little bush in the extreme distance. Again, you will perceive that the later and thinner lines have been used frequently *as a glaze* over spaces already mapped out by strong indications, such as the roof and eaves of the hut, the arch of the well, the little rustic gate, &c. It is one of the great advantages of the positive process to be able to throw a light tint in this way over a skeleton of firm lines without being obliged to ground the plate over again. In the old negative process, to do this you had to lay a fresh ground, which had to be either black or transparent. If it was black, none but the stronger lines already done remained clearly visible, whereas if it was transparent the lines to be added as a glaze would not be visible to you whilst you were drawing them. In the positive process this kind of glazing is as convenient as the rest of the work, and causes no interruption of any kind.

Although this plate was executed in two sittings, it was not grounded twice. In large elaborate plates the sittings may be renewed as often as you please, on condition of removing the ground and laying a fresh one over the whole plate after every six hours of labour in the bath.

A friend wrote to me the other day and said that he supposed the positive process would be useful only for simple subjects ; he had seen a plate by Bracque-mond which had been bitten sixty times. Bracque-mond, in using the old negative process, stopped-out sixty times, in order to get sixty degrees of depth in his lines. But a plate etched positively in the bath, although no stopping-out is used, passes from dark to pale even more gradually than that, in fact without any steps at all. The continuous bath is equal to sixty bitings, if you will, or to sixty thousand.

CHAPTER XXVI.

Of Finish in Etching.

IT may be well to conclude with a few words about finish, which is not very generally understood. In etching it does not consist in the multiplicity of lines. People imagine, when they see few lines, that the work is unfinished, but when they see evidence of great labour, in many strokes of the needle, they praise the work for its high finish. But *the true finish lies in the intensity and successfulness of the mental act*, and that may be proved quite as much by selection and omission as by hand-labour. Always endeavour, in etching, to express your thought in as few lines as may be, and to put as much meaning into each of those few lines as it can possibly be made to convey. The real finish in etching resides there. Finish as the best poets finish their landscape descriptions, where there it not a word too much, and every syllable tells.*

* Two opposite kinds of false finish prevail in the contemporary English and French schools of etching. In England, etchers usually finish falsely by the multiplicity of lines which have little meaning ; in France, on the other hand, they finish falsely by the meaningless impudence of what ought to be the *capital*, or most expressive lines. We are not in great danger from bad French etching, as its insolence is seen at a glance, and esteemed at its true value. Our danger lies in the other direction, that of laborious, rather than indolent, meaninglessness.

CHAPTER XXVII.

Specks and Rotten Lines.

IN the old negative process specks and rotten lines occur rather frequently, even in plates by the greatest masters. The great masters were rather tolerant of them, looking to expression always, and forgiving themselves these technical blemishes. Specks occur when the ground is porous, and rotten lines when the ground has not been entirely and clearly removed by the needle in its passage upon the copper. To avoid them, pay great attention to the chemical quality of your ground, to its degree of hardness, and to the regularity of your hand pressure when at work. The way you smoke the ground, in the old negative process, may have a good deal to do with it. It is one of the many advantages of my positive process that neither specks nor rotten lines occur in it, the perfection of the wax ground, applied equally in solution and not afterwards endangered by smoking, insures you against specks, whilst rotten lines are effectually prevented by the sharpness of the needle which is used for thick and thin lines alike.

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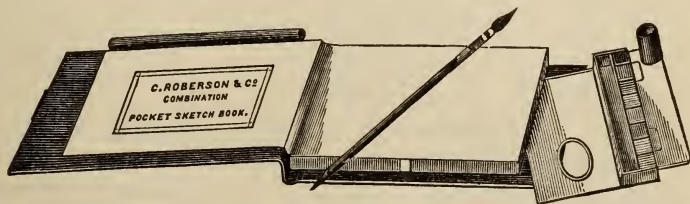
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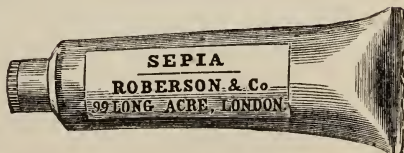
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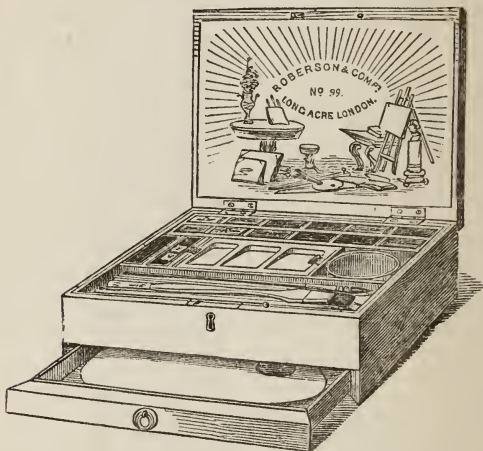
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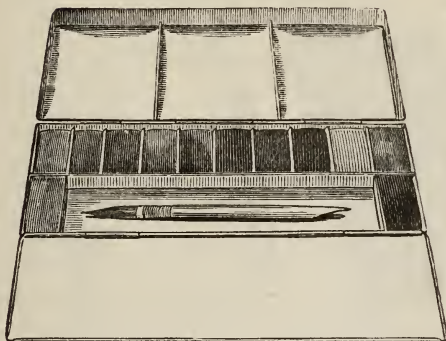
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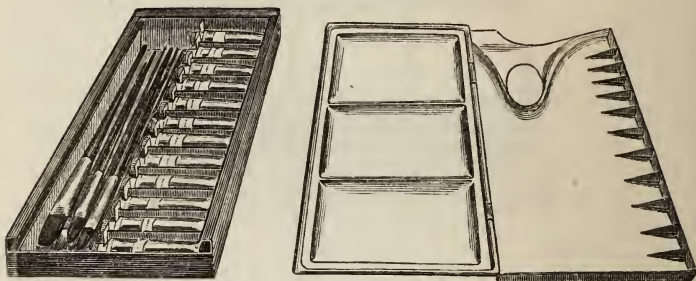
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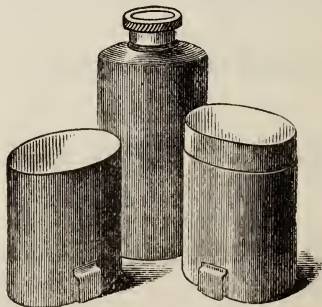
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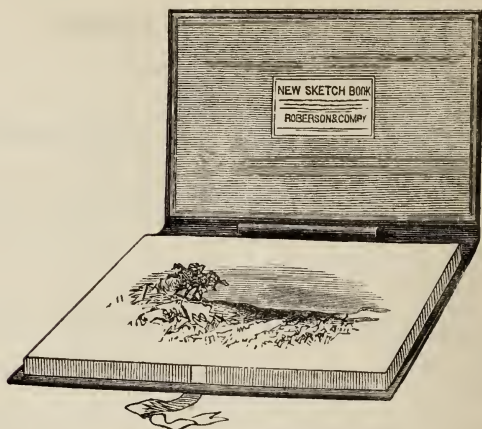
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BBBB Very black, with extra thick Lead	„	2 0

ROBERSON'S POLISHED CEDAR PENCILS.

HHH, HH, H, F, HB, B, BB, BBB, EHB	<i>each</i>	0 3
HHHH, HHHHHH, and BBBB	„	0 6

LEATHER PENCIL CASES.

Round	1s., 1s. 3d., &	1 6
Flat	1s. 6d., 2s. 6d., &	3 0
Roll-up Cases for Pencils, Brushes, &c.		2 6
Ditto, large size		3 6

BLACK, WHITE AND RED CHALKS FOR DRAWING.**CONTÉ CRAYONS & PENCILS. CHALK PENCILS.****FRENCH COLOURED CRAYONS.**

Boxes containing 1 dozen		1 6
Ditto 1½ „		2 3
Ditto 2 „		3 0
Ditto 3 „		4 6

SOFT FRENCH CRAYONS.

	<i>£.</i>	<i>s.</i>	<i>d.</i>		<i>£.</i>	<i>s.</i>	<i>d.</i>
Box containing 28	0	4	0	Box containing 64	0	14	0
Ditto 46	0	6	6	Ditto 138	1	6	0
Ditto 56	0	10	0	Ditto 164	1	16	0

PORTE CRAYONS, STUMPS, &c.
BRASS PINS FOR FASTENING DOWN PAPER.
INDIAN RUBBER & INK ERASERS.

WATER COLOUR SABLE HAIR BRUSHES,
Of Finest Quality, Tied with Gold Wire.



6d. each.



8d. each.



1s. each.



2s. each.



3s. each.



4s. each.



6s. each.



8s. each.



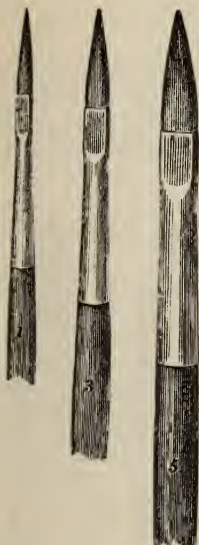
10s. each.



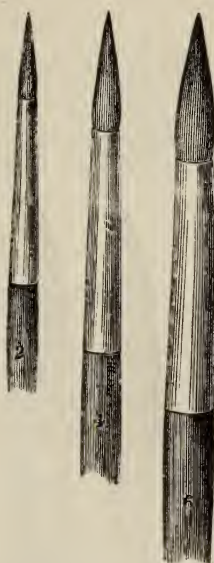
15s. each.

ROUND AND FLAT SABLES FOR WATER COLOUR.

FLAT.



ROUND.



FINEST RED SABLES IN TIN.

FLAT OR ROUND.

	<i>s.</i>	<i>d.</i>		<i>s.</i>	<i>d.</i>
No. 1	1	0	No. 7	3	0
„ 2	1	2	„ 8	3	9
„ 3	1	4	„ 9	4	6
„ 4	1	6	„ 10	6	0
„ 5	1	10	„ 11	7	6
„ 6	2	3	„ 12	9	0

FINEST BROWN SABLES IN TIN.

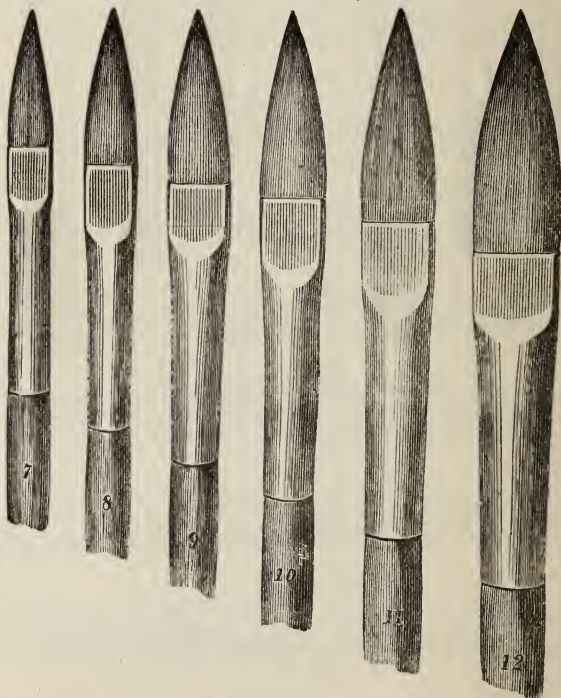
ROUND.

	<i>s.</i>	<i>d.</i>		<i>s.</i>	<i>d.</i>
No. 1	0	8	No. 6	2	3
„ 2	0	9	„ 7	3	0
„ 3	1	0	„ 8	4	6
„ 4	1	3	„ 9	6	0
„ 5	1	6	„ 10	7	6

FINEST BROWN SABLES IN TIN.

FLAT.

		<i>s. d.</i>		<i>s. d.</i>
No. 1 . . .	<i>each</i>	0 8	No. 7 . . .	<i>each</i> 2 6
„ 2 . . .	„	0 9	„ 8 . . .	„ 3 0
„ 3 . . .	„	1 0	„ 9 . . .	„ 4 0
„ 4 . . .	„	1 3	„ 10 . . .	„ 5 0
„ 5 . . .	„	1 6	„ 11 . . .	„ 6 0
„ 6 . . .	„	2 0	„ 12 . . .	„ 7 0

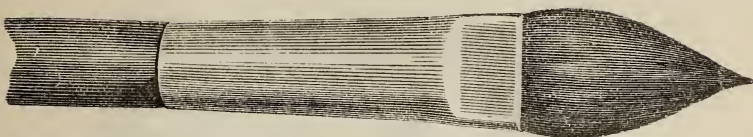


FINEST CAMEL HAIR BRUSHES.

Same Pattern as the Sable Brushes above.

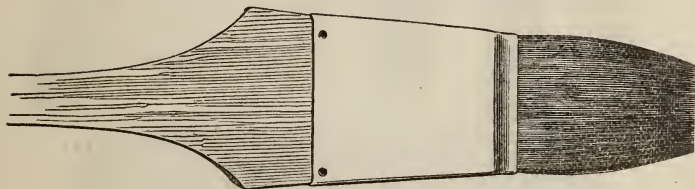
	<i>s. d.</i>		<i>s. d.</i>		<i>s. d.</i>
No. 6 . . .	1 0	No. 8 . . .	1 4	No. 10 . . .	1 9
„ 7 . . .	1 2	„ . . .	1 6	„ 12 . . .	2 0

FLAT CAMEL HAIR BRUSHES,
For Skies, Washes, &c.



1s. 6d. each.

FLAT CAMEL HAIR BRUSHES.



	<i>s. d.</i>		<i>s. d.</i>
$\frac{1}{2}$ Inch wide . . . each	0 8	$1\frac{1}{2}$ Inch wide . . . each	1 6
$\frac{3}{4}$ ditto . . . "	0 9	$1\frac{3}{4}$ ditto . . . "	1 9
1 ditto . . . "	1 0	2 ditto . . . "	2 0
$1\frac{1}{4}$ ditto . . . "	1 3	3 ditto . . . "	3 0

FINEST CAMEL HAIR PENCILS,

French Pattern, Tied with Blue and Silver Wire.

	<i>s. d.</i>
Best Quality, sorted per dozen	3 0
Crow Quill each	0 2
Duck Quill "	0 3
Goose Quill "	0 4
Large Goose Quill "	0 6
Extra small Swan Quill "	0 9
Swan Quill, Small "	1 3
Ditto Middle "	1 6
Ditto Large "	2 6

INDIAN INK.



9d. to 7s. 6d. per Stick.

INDIAN INK AND COLOUR SLABS.



CABINET SAUCERS,



Six in the Set.

		s.	d.
No. 1 Set	each	1	8
" 2 "	"	2	3
" 3 "	"	2	9
Leather Cases for ditto	each 1s. 6d., 2s. 0d., &	2	6
Tinting Saucers	per dozen, 1s. to	3	0
Plain China Tiles, 4, 5, 6, 7, 8 & 9 in. Square	per inch	0	2

FLAT DIVISION CHINA TILES.

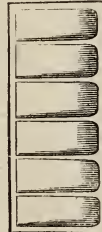
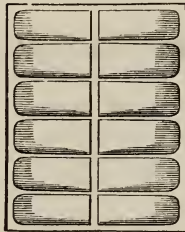
6d. to



2s. 6d. each.

SLANT CHINA TILES.

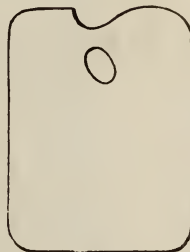
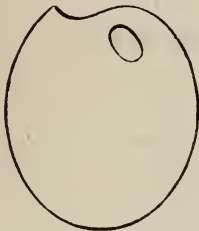
8d.
to
3s. 6d.



each.

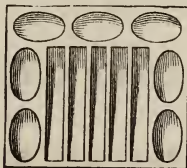
CHINA PALETTES, &c.

3 in.
to
10 in.



6d. to
1s. 9d.
each.

CHINA WELL SLABS.



		s.	d.
3 Wells	each	1	9
5 "	"	2	0
7 " as above	"	2	6

IMPROVED MAHOGANY SKETCHING BOARDS,

WITH HINGED FRAME AND PINS.

			in.	in.				£.	s.	d.
Imperial 8vo.	.	.	11	by 7½	.	.	.	<i>each</i>	0	7 6
Ditto 4to.	.	.	15	„ 10½	.	.	.	„	0	12 6
Half Imperial	.	.	21½	„ 15	.	.	.	„	0	15 0

DEAL DRAWING BOARDS.

				in.		in.				£.	s.	d.	
4to. Royal	.	.	.	12	by	9½	.	.	.	<i>each</i>	0	1	9
4to. Imperial	.	.	.	16	„	12	.	.	.	„	0	2	6
Half Royal	.	.	.	19	„	12	.	.	.	„	0	2	9
Demy	.	.	.	20	„	15	.	.	.	„	0	3	6
Half Imperial	.	.	.	22	„	16	.	.	.	„	0	4	0
Medium	.	.	.	22	„	17	.	.	.	„	0	4	0
Royal	.	.	.	24	„	19	.	.	.	„	0	5	0
Imperial	.	.	.	31	„	22	.	.	.	„	0	7	6

MAHOGANY DRAWING BOARDS,

WITH MOVEABLE PANELS.

				in.		in.				£.	s.	d.	
Demy 4to.	.	.	.	8	by	6	.	.	.	<i>each</i>	0	4	6
Royal 4to.	.	.	.	10½	„	8	.	.	.	„	0	5	6
Imperial 4to.	.	.	.	13½	„	9½	.	.	.	„	0	6	0
Half Medium	.	.	.	15	„	11	.	.	.	„	0	8	0
Demy	.	.	.	18	„	13½	.	.	.	„	0	10	0
Half Imperial	.	.	.	19½	„	13½	.	.	.	„	0	10	6
Royal	.	.	.	22	„	17½	.	.	.	„	0	14	0
Imperial	.	.	.	28	„	19	.	.	.	„	1	1	0

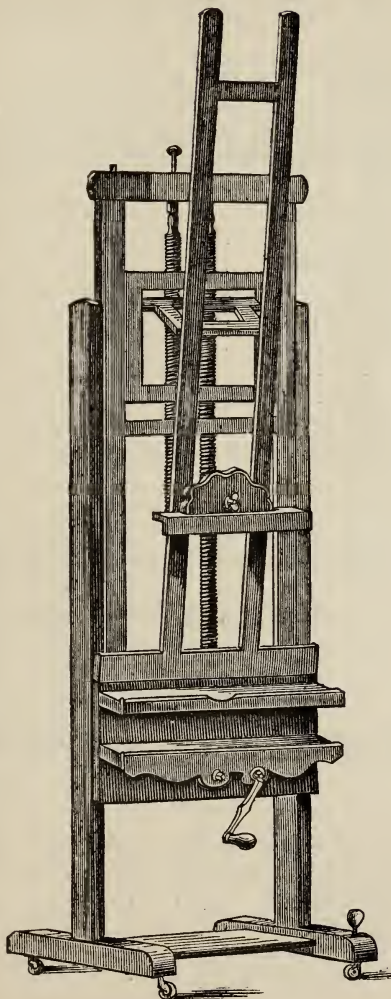
MATHEMATICAL CURVES & ANGLES, 10d. to 3s. each.

EBONY PARALLEL RULES.

Cases MATHEMATICAL INSTRUMENTS, from 4s. to £6 6s.

ARTISTS' STUDIO EASELS,

With Single and Double Fronts, Screw Action, &c.



From £3. 10s. to £15. 15s.

DEAL AND MAHOGANY EASELS.

	£.	s.	d.
Deal Sketching Easels	<i>each</i>	0	6 0
Deal Standing Easels	„	0	14 0
Deal Closing Easels	„	0	8 0
Ditto, to fold	„	0	16 0
Ditto (with Pegs and Rest Stick enclosed)	„	1	1 0
„ dwarf Rack	„	1	10 0
Mahogany Closing Easels	„	0	14 0
„ to fold	„	1	2 0
„ Standing Easels	„	0	18 0
„ Rack ditto	„	3	3 0
Deal Table Easels, with Pegs	„	0	6 0
Mahogany ditto	„	0	8 0
Deal Rack	„	0	10 6
Mahogany	„	0	16 0
Folding Sketching Easels	„	0	5 0
Walnut, with sliding legs for uneven ground	„	0	18 0

IMPROVED MAHOGANY RACK EASEL,

With addition of Shifting Desk, for Oil or Water Color Painting.

PORTABLE SEATS, &c. FOR SKETCHING.

From 5s. to 18s. each.

	£	s.	d.
Sketching Seat and Easel, combined	1	1	0
Ditto with Shifting Easel, for Sketching, in either Oil or Water	1	10	0
Sketching Umbrellas	<i>each</i>	1	5 0
„ Larger	„	1	13 0
„ Extra strong	„	2	6 0
„ With Tent complete	„	4	0 0
Sketching Tent	„	2	10 0
Ditto, square	„	3	0 0

OIL COLOUR MATERIALS.

OIL COLOURS IN COLLAPSIBLE TUBES.



Single Tubes, 4d. each.

Double Tubes, 8d. each.

Antwerp Blue	Emerald Green	Orange Chrome
Asphaltum	Flake White	Patent Yellow
Bitumen	Gamboge	Permanent Blue
Black Lead	Golden Oker	Prussian Blue
Blue Black	Indigo	Purple Lake
Bone Brown	Indian Red	Raw Siena
Brown Pink	Indian Lake	Raw Umber
Brown Red	Italian Pink	Roman Oker
Brown Oker	Ivory Black	Scarlet Lake
Burnt Siena	Lamp Black	Sugar Lead
Burnt Umber	Lake	Terre Verte
Caledonian Brown	Light Red	Vandyke Brown
Cappah Brown	Mineral Grey	Venetian Red
Chrome Yellow	Mummy	Verdigris
Cologne Earth	Naples Yellow	Verona Brown
Crimson Lake	Naples Yellow, deep	Yellow Lake
Deep Chrome	Olive Lake	Yellow Oker

EXTRA COLOURS.

	£.	s.	d.		£.	s.	d.
Ultramarine . . . each	1	1	0	Mars Orange . . . each	0	2	0
Ultramarine Ashes . . .	0	3	0	Lemon Yellow, pale			
Madder Carmine . . .	0	5	0	and deep	0	1	6
Cadmium, pale & deep	0	3	0	Mars Yellow	0	1	6
Aureolin	0	3	0	Strontian Yellow . . .	0	1	6
Carmine	0	3	0	French Ultramarine . .	0	1	6
Crimson Madder . . .	0	3	0	Cobalt Blue	0	1	6
Purple Madder . . .	0	3	0	Brown Madder	0	1	6
Scarlet Madder . . .	0	2	0	Pink Madder	0	1	6
Malachite Green . . .	0	2	0	Rose Madder	0	1	6
Oxide of Chromium . .	0	2	0	Indian Yellow	0	1	6
Emerald ditto	0	2	0	Orange Lake	0	1	6
Yellow Madder, pale				Orange Vermilion . . .	0	1	6
and deep	0	2	0	Vermilion	0	1	0
Ultramarine Grey . . .	0	2	0	Burnt Lake	0	0	9
Extract of Vermilion .	0	2	0	Ceruleum	0	0	9

ROBERSON'S Crimson Lake, warranted to keep good, 9d.

VARNISHES, OILS, &c.,

In Glass Bottles.

	Rounds.		$\frac{1}{2}$ Pints.		Pints.	
	s.	d.	s.	d.	s.	d.
Mastic Varnish	2	0	6	0	12	0
Preparation of Copal	1	3	4	0	8	0
Copal Oil Varnish	1	0	3	6	7	0
White Spirit or Spa ditto	1	0	3	6	7	0
Japan Gold Size	0	8	2	0	4	0
Nut Oil	1	0	2	0	4	0
Poppy Oil	0	8	1	6	3	0
Cold-drawn Linseed Oil	0	6	1	6	3	0
Pale Drying Oil	0	6	1	6	3	0
Rectified Spirits of Turpentine	0	6	1	3	2	6

ROBERSON'S MEDIUM FOR OIL PAINTING.



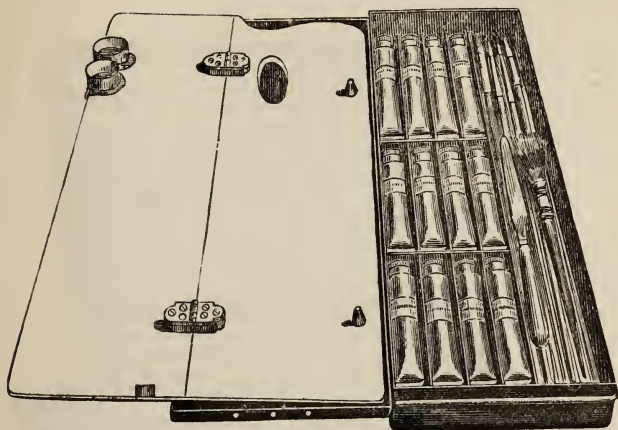
This Medium has now been in universal use by Artists for forty years, and is confidently recommended for its quality, of imparting permanency and richness to Colours.

IN TUBES—(Size of Engraving) each 1s.
 LARGER DITTO „ 1s. 6d.

Please observe that the neck of the Tube is stamped "ROBERSON'S MEDIUM."

Parris's Marble Medium in Tubes each 1s. & 1s. 6d.

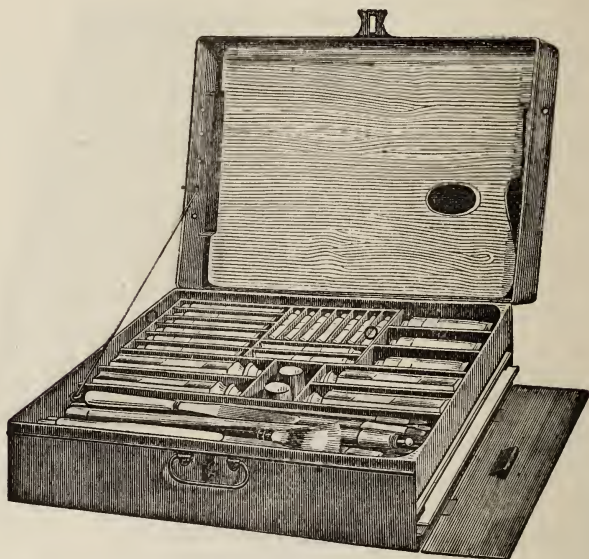
JAPANNED TIN OIL COLOUR BOXES.



	Empty.			Fitted complete.		
	£.	s.	d.	£.	s.	d.
Japanned Sketching Box, Twelve Tube Colours, Brushes and folding Palette, size $13\frac{1}{4}$ in. by $4\frac{3}{4}$ in. and $1\frac{1}{4}$ in. deep	0	6	0	1	5	0
Ditto, $1\frac{3}{4}$ in. deep, with Tray for extra Colours, larger assortment of Brushes, and portable Rest Stick	0	8	0	2	5	0
Japanned Box, Sixteen Tubes, Palette, Brushes, Oils, &c., size 10 in. by $6\frac{3}{4}$ in. and $2\frac{1}{4}$ deep	0	9	0	1	16	0
Ditto, Twenty Tubes, Palette, Brushes, Oils, &c. size $10\frac{3}{4}$ in. by $7\frac{3}{4}$ in. and $2\frac{3}{4}$ in. deep	0	11	0	2	5	0
Ditto, Twenty-seven Tubes, Palette, Brushes, Oils, &c., size 13 in. by $8\frac{1}{2}$ in. and 3 in. deep	0	13	0	3	10	0

OIL COLOUR BOXES,

CONTINUED.



	Empty.			Fitted complete.		
	£.	s.	d.	£.	s.	d.
Japanned Tin Box for Twenty-seven Tubes, Palette, Brushes, Rest Stick, Oils, &c., with double bottom for Three Millboards, size $13\frac{1}{2}$ in. by $9\frac{1}{2}$ in. and $3\frac{1}{2}$ in. deep	1	0	0	4	4	0

WALNUT-WOOD OIL COLOUR SKETCHING BOXES,

EMPTY, WITH WHITE WOOD PANELS,

From 10s. 6d. to 35s.

FINE LINEN CANVAS, prepared for Oil Painting.

Prepared in a superior manner, in Canvas, Roman and Ticken.

$\frac{3}{4}$ or 27 in. wide	per yard	3 feet 9 in. wide	per yard
$\frac{7}{8}$ or 30 " .	"	4 " 6 " .	"
36 " .	"	5 " 2 " .	"
38 " .	"	6 " 2 " .	"
3 feet 6 " .	"	7 " 2 " .	"

PREPARED CANVAS ON FRAMES.**Portrait Sizes,****ON WEDGED FRAMES.**

Inches.	£.	s.	d.
10 " 8			
12 " 10			
14 " 12			
18 " 14			
20 " 16			
21 " 17			
24 " 20, Head size			
30 " 25, Three-quarter size			
36 " 28, Kitcat			
44 " 34, Small half-length			
50 " 40, Half-length			
56 " 44, Bishop's Half-length			
7 ft. 10 by 4 ft. 10, Whole length			
8 ft. 10 by 5 ft. 10, Bishop's whole length			

Landscape Sizes,**ON WEDGED FRAMES.**

Inches.	£.	s.	d.
9 by 6			
10 " 7			
12 " 8			
12 " 9			
13 " 9			
14 " 10			
16 " 12			
18 " 12			
20 " 14			
24 " 18			
30 " 20			
36 " 24			
50 " 30			

PREPARED MILLBOARDS,

From 6 inches by 5 to 30 inches by 25.

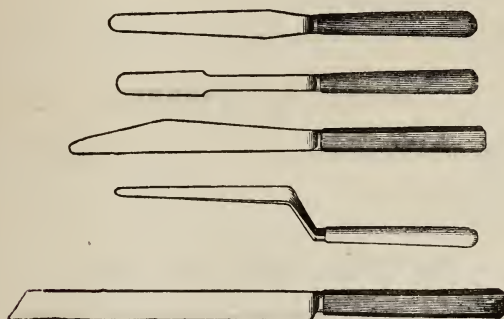
SUPERIOR PANELS, prepared of well-seasoned Mahogany,

From 8 inches by 6 to 36 inches by 28.

PREPARED ACADEMY BOARDS.

PAPER for Sketching in Oil, also made in Blocks.

PALETTE KNIVES, &c.



Steel Palette Knives, (patterns as above) . . .	9d. to 2s. 6d. each.
Ivory Palette Knives	1s. to 2s. 6d. „
Gilders' Knives	1s. 9d. to 2s. 6d. „
Artist's Pocket Knives for Erasing, &c., 2 blades .	2s. 6d. „

TIN DIPPERS FOR OIL.

		s.	d.
Plain Tin Dippers	each	0	4
Ditto, Double ditto	„	0	6
Japanned Dippers, Single	„	0	6
Ditto ditto, Double	„	1	0

IMPROVED
DIPPER,



WITH
RIM.

Improved Japanned Tin Dippers, Small size . . .	each	1	0
Ditto ditto Middle „ . . .	„	1	3
Ditto ditto Large „ . . .	„	1	6
Tin Plain Brush Washers	„	1	6
Japanned ditto	„	2	6
Tin Brush Pans, Small size	„	3	6
Ditto Middle „	„	4	0
Ditto Large „	„	4	6

PARISIAN LAY FIGURES, latest Improvements.

Life Size, Male, Female, or Child each £

THE ABOVE LENT ON HIRE AT PER MONTH.

WOODEN LAY FIGURES.

	£	s.	d.
From 6 inches to 24 inches high each	3s.	to 0	15 0
Ditto, Life Size	8	0	0
Lay Figure of Horse			

DRAWING MODELS IN WOOD.

Consisting of a large number of Solids, of simple forms, capable
of being combined into a variety of figures, in boxes from 8s. to 2 2 0

MATERIALS FOR GILDING, &c.

Oil Gold Size	per tube	0	1	0
Water ditto	per bottle	0	1	0
Fat Oil	per bottle	0	1	0
Burnish Gold Size	per tube	0	0	6
Japanners' Gold Size	per bottle	0	0	8
Gilders' Cushions	each	0	3	0
Ditto Tips	"	0	0	4
Ditto Knives	each, 1s. 9d. to	0	2	6
Ditto Burnishers	2s. 6d. to	0	3	6
Gold Leaf	per book	0	2	0
Silver ditto	"	0	1	6

PALETTES—Mahogany, Sycamore and Satinwood.
Also to fold.

Pictures carefully Lined, Cleaned, Repaired and Varnished.
Panels Parquetted.

ETCHING & COPPER PLATE PRINTING MATERIALS.

	£.	s.	d.
Burnishers, finest steel	<i>from</i>	0	1 6
Blotting Paper	<i>per quire</i>	0	2 0
Bordering Wax	<i>per stick</i>	0	1 0
Copper Plates	<i>from</i>	0	1 0
Boxes for ditto		0	2 0
Charcoal, Vine and Willow	<i>per dozen sticks</i>	0	1 0
Dabbers, Silk	<i>each</i>	0	2 0
Ditto, Leather	<i>„</i>	0	2 0
Etching Needles	<i>„</i>	0	0 6
Ditto, fixed in handles	<i>from</i>	0	1 6
Ditto, all steel	<i>„</i>	0	1 0
Ditto, double ends	<i>„</i>	0	1 6
Emery Cloth and Powder			
Etching Ground	<i>per ball</i>	0	1 0
Ditto, Liquid	<i>per bottle</i>	0	1 0
Gravers and Handles			
Handvices, with Handles	<i>each</i>		
Imitation India Paper, White and Toned	<i>per sheet</i>	0	0 8
Printing Presses, with Blanket and Cloth	<i>each</i>	4	4 0
Ditto, large size „ „	<i>„</i>	6	6 0
Porcelain Baths	<i>„</i>	0	1 6
Trays for ditto			
Palette Knives	<i>from each</i>	0	1 0
Plate Paper, White and Toned	<i>per sheet</i>	0	0 8
Printing Ink	<i>per bottle</i>	0	1 0
Reducing Oil	<i>„</i>	0	0 6
Stopping Out Varnish	<i>„</i>	0	1 0
Transparent Varnish	<i>„</i>	0	1 0
Scrapers, finest steel	<i>from</i>	0	2 6
Spirit Lamps	<i>from each</i>	0	1 6
Tracing Paper	<i>from per sheet</i>	0	0 4
Tapers			
Tripoli Powder			

BOXES OF ETCHING MATERIALS, complete, including
Printing Press (*see page 31*),

From £6. 6s. 0d. to £10. 10s. 0d. each.

LIQUID INK FOR PEN AND INK DRAWING.

1s. 6d. per bottle.

Crow Quill Pens and Quills,
6d. per dozen.

Lithographic Crow Quill Pens,
2s. per card of 12.

LITHOGRAPHIC CHALKS AND INKS.

**BOX WOOD BLOCKS AND MATERIALS FOR
 ENGRAVERS.**

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THE ETCHER'S HAND-BOOK,

By PHILIP GILBERT HAMERTON, author of "Etchings and Etchers."
 Illustrated by the Author. Price 5s.

THE PROPORTIONS OF THE HUMAN FIGURE,

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